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PRINCIPLES AND TECHNIQUE OF TEACHING

AN INTRODUCTION TO THE STUDY OF THE TEACHING ART

BY

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EDITOR'S INTRODUCTION

When a student enters a teacher-training institution, of any type, to begin preparation for the work of a teacher, some kind of introductory course in the field of education is desirable, and is quite commonly given and required of all. The nature of this introductory course varies much in practice, and will be determined somewhat by the particular aims of those having charge of the training.

A number of different types of introductory courses are found in different teacher-training institutions in this country. In some places an historical approach is made to the work of teaching, and students begin with a study of our present-day educational problems in the light of their historical development. There is much to be said in favor of this type of course, as in it the instructor is able to set forth in relief the struggles of those who labored to establish our state systems of public education, and to show the development of the problems in instruction that the teachers will later meet.

In other institutions a general introductory course is employed, in which the main purposes and fields of public education, the general nature of the educative process, the scope of the public school system, and the outstanding problems in our educational work are first studied, with a view to a general survey of the field of public education before beginning with particular segments of it. This type of course also has much that may be said in its favor.

In still other institutions the administrative approach is used, and the emphasis of the beginning course is placed on classroom organization and control, the school as a social

instrument, and on education as a process of adjustment, with a view to revealing to the prospective teacher the large social as well as psychological importance of the forms for organization and control which may be used. The prime purpose of this type of course is to prepare the prospective teacher for practical work in the training school, and later in the regular classroom.

In still other institutions we find instructors who feel that the best type of beginning course lies along the line of an introduction to teaching itself, and who begin with a directed study of classroom technique, as found represented in the work of strong teachers in the training school, and who accompany this directed observation with a discussion of the fundamental psychological principles that find expression in a sound technique of teaching. This type of introductory course has been increasingly favored in recent years by those teachers who feel that the best way to prepare for teaching is by a direct study of good teaching practice, with only enough of guiding principles at the start to make clear the sound teaching procedures in the technique observed.

The present volume in this series of textbooks has been constructed by a teacher who believes in the efficacy of this last-mentioned type of introductory course, and who for many years has started his students in training for teaching by following this plan. Founding his course on directed observation in the training school, and on a careful classroom discussion of teaching technique in the light of the fundamental laws of learning, he has introduced his students to the educative process by a sound study of the teaching art.

Induced by the editor to put in usable form the plan which he has followed, he has in this volume brought together the essentials of what seem to him to be needed for an introductory course in a teacher-training institution, and

offers it for the use of teachers generally. It is the feeling of the editor of the series that what he has produced, due to its good organization, its direct attack on the teaching problem, and its very concrete and helpful presentation of both theory and practice, will find large use for itself as a text in all kinds of teacher-training institutions. It is also his feeling that the volume will prove very helpful to that large number of beginning teachers who have not been fortunate enough to secure professional training before beginning their work as teachers.

ELLWOOD P. CUBBERLEY

PREFACE

The preparation of this book has grown out of a course of instruction, bearing a similar title, which the author has given regularly to groups of students who were about to begin their practice in teaching in the teachers' college with which he is connected. While there were good texts dealing with teaching methods, it was difficult to find one which furnished adequate assistance in accomplishing the three things which seemed essential in an introductory course in teaching practice. The attempt to meet this need is the distinguishing feature of the present volume.

The first of these essentials has to do with an organized body of principles upon which teaching procedure is to be based. These must be derived from the psychology of learning, and should bring together and utilize the pertinent results of such experimental studies as have bearing. In this way a lack of functional relationship between psychology and teaching will be avoided, and the prospective teacher will be introduced directly to the sources from which further help is most likely to come in the progressive solution of classroom problems.

The second point which seems essential is to familiarize the student with the fundamentals of a teaching technique which conforms to and applies the principles so derived. This step must include an attempt at an impartial evaluation and interpretation of the various "methods" and "plans" of procedure, to which distinctive names have been given by enthusiastic proponents. Even experienced teachers become bewildered in attempting to distinguish between motivation, project method, socialized recitation,

free activities, and various special "plans" by which the procedures and terminology of teaching have been enriched. A number of these movements have made significant and valuable contributions to the progress of education, and the teacher should be prepared to utilize them fully and intelligently. There are no sudden changes in the normal processes by which children, either in or out of the schoolroom, acquire ready skill, clear knowledge, worthy attitudes, and enriched appreciations. The teacher should learn to evaluate so-called new methods in relation to these fundamental learning activities.

The third feature that seems necessary to developing a well-grounded technique of teaching is carefully directed observation and first-hand study of actual teaching. This should supply objective material, with some of the advantages of the laboratory method, whereby an intimate connection may be maintained between principles and practice. To be of the most value, however, this observation should be an integral part of the study, intimately connected with the remainder of the work, and so directed as to focus attention upon the applications in the schoolroom of each important principle as it is developed. The outline guides for observation, following each chapter except the introductory ones, represent an attempt to bring about in this way a practical unification of the theoretical discussions with the corresponding teaching problems as these actually occur. Incidentally, these outlines furnish the teacher in service a guide for self-criticism, or for conference with supervisors.

The student of education will note throughout a sympathy with the progressive practices of modern education which emphasize pupil-initiative. The writer believes that the purposes of education can be most surely and most economically attained through enlisting the "whole-

hearted, purposeful activity" of the child, and no reasonable effort should be spared to arrange situations which will stimulate and call this forth. According to Kilpatrick's definition, this viewpoint is that of the "project method." Due to the fact, however, that there is sharp controversy as to what shall be called projects, the writer has preferred to use less debatable terms, and to designate as projects only those activities which all educators would so classify. The issues involved in this matter are discussed at some length in the chapter on "The Use of Projects" (Chapter XV).

The author wishes to acknowledge his gratitude to present and former colleagues in teacher-training who have supplied much illustrative material. His acknowledgments for permission to quote material from other books appear on another page. He is indebted also to the editor of this series for suggestions which have added to whatever value the volume may have.

FRANK W. THOMAS

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PRINCIPLES AND TECHNIQUE OF TEACHING

PART I

THE AIMS OF PUBLIC SCHOOL EDUCATION

PRINCIPLES AND TECHNIQUE OF TEACHING

* * *

CHAPTER I

THE OPPORTUNITIES AND RESPONSIBILITIES OF THE TEACHER

Teaching and leadership. In a broad sense, humanity has always depended upon its teachers for leadership. The great personalities who have moulded human thought and contributed in any substantial way to human progress have either themselves borne the name of *teacher*, or have sought the aid of teachers in the consummation of their purposes. This teaching has sometimes taken the form of developing among the people a familiarity with the arts and skills of a better civilization. Sometimes it has led them to a surer comprehension of great moral or political issues. Sometimes it has carried before them the blazing torch of high aspirations, and inspired them with a renewed devotion to ideals. The student of history will recall many names of teacher-leaders, teacher-counselors, teacher-prophets, and teacher-patriots who have, through written or spoken word, shaped and guided the great movements of civilization.

The desire to influence the thoughts, beliefs, and actions of one's fellow-beings is strong in the human heart, and the wish to engage in some phase of educational activity makes a potent appeal in spite of what often seems inadequate compensation. On the other hand, men who have chosen more material fields of endeavor, and have amassed great fortunes, frequently find such achievements unsatisfying

and wish to identify themselves with movements which can carry on their influence in a more vital way. Accordingly, they give lavishly of their wealth to found and support institutions and organizations of an educational character, in order that they may, even in this indirect way, have the satisfaction of sharing in the service by which the teacher leads humanity along the pathway of progress.

Teaching as a social force. Nations are coming to recognize more and more clearly their dependence upon the service and guidance of well-trained and efficient teachers as indispensable to national unity and development. The conservation of what has already been achieved, and the hope of a better future alike call for able teachers. The recognition of the first of these needs impelled the early New England colonists to lay out, even amid the hardships of the wilderness, a comprehensive plan of education for the training of leaders in order, as they expressed it, "to advance learning and perpetuate it to posterity, dreading to leave an illiterate ministry to the churches when our present ministers shall lie in the dust."

Our national leaders, in the time of Washington and Jefferson, realized that the only hope of a unified and intelligent free government lay in the general diffusion of education. In fact, from the time when Prussia, after being crushed and humiliated by Napoleon in 1807, listened to the advice of Fichte and called its young men into training and service as teachers with the almost incredible result that the spirit and efficiency of the entire Nation was transformed within seven years, down to the present time, civilized nations have recognized more and more clearly that the future of their people lay in the hands of their teachers.

Teaching as a profession. In view of the recognized importance of the teacher and his work, it is obvious that teaching offers a challenge to the best efforts that one can

prepare to give. Its attractions do not, however, include those of spectacular rewards or spectacular power. Financial compensation has, in general, increased during recent years to a degree which justifies careful preparation on the part of the prospective teacher, and the expectation of permanent service in the profession with a reasonable income. No small share of the rewards, however, will probably continue to be its opportunities for mental and moral growth, its attractive fields for pleasant and fruitful service, its encouragement of worthy ideals, and those quiet satisfactions that come from seeing the results of earnest effort and knowing that life has been made finer through one's labor and influence. Similarly, the power which it offers is unadorned with the flourish of pomp or display, but its force is felt in the renewed life and culture of entire communities.

The prospective teacher who is willing to accept the opportunities of the profession on these terms must recognize also that there are involved corresponding responsibilities to prepare to meet professional standards and to serve in a professional spirit. In any true profession there must always be a sufficient body of organized knowledge and skills to require prolonged and careful study for their mastery. The achievement of this mastery must be one of the qualifications properly required of those who seek admission and standing in the profession. There should also be included an acceptance of the obligation to give the highest possible quality of service, with the recognition that one's work is a form of public responsibility. The true joy of finding in one's profession an adequate means of worthy self-expression is realized only by those who prepare for service in accordance with standards such as these.

Can the art of teaching be taught? There is a diminishing number of individuals who contend that the ability to

teach successfully is a gift, and that there is no reliable procedure by which that ability can be taught to others. No one will deny, of course, that there are special characteristics of personality of particular advantage to the teacher, just as certain native qualities are especially favorable to the development of skill in surgery. The mere possession of these qualities, however, does not ensure that one person will be a good teacher or the other a good surgeon. Our critics urge in support of their contention the fact that two equally successful teachers use apparently diverse methods of teaching the same subject, concluding thereby that there are no fixed principles in this regard, but that each one must find out by experience what for him works best. It would be just as valid to contend that there are no scientific principles in surgery because one surgeon holds his scalpel in his right hand, while another holds his in the left.

The source of error in the argument of those who question the existence of any established principles of teaching lies in the superficial view taken. The real basis of skillful procedure on the part of the surgeon, or physician, or teacher is not to be found in a series of objective activities, important as they are, but in the training which enables them to comprehend the needs of an important situation, to make an intelligent diagnosis of the difficulties, and to select the most appropriate means of securing the desired improvement. When we take our attention from the personal characteristics and mannerisms of the teacher and focus it upon the learners, noting especially the nature of their responses and progress, we find at once a most impressive similarity in the fundamental principles followed by all good teachers who are facing similar problems. An amateur would fail who attempted to duplicate the success of any one of these teachers by superficial imitation, but similar skill can be acquired by any competent and earnest student who is

willing to pursue, first the studies upon which must rest an intelligent comprehension of the principles involved, and then to build up the skills and technique appropriate to the application of those principles.

How are principles of teaching to be determined? From the foregoing it should be clear that there can be no scientific formulation of principles of teaching, except as these are based on principles of learning. The focus of attention must be the learner, both in the preliminary preparation and in the actual process of teaching. The normal reactions of the learner, the situations which call forth various kinds of behavior, the circumstances which affect progress and rates of learning, the conditions favorable or unfavorable to particular results — these are some of the factors which will have to be examined and evaluated. From the basis of facts obtained through such studies we can derive principles by which teaching may be properly guided.

Acquiring skill in teaching. Actual skill in teaching must come through practice. At the same time, it should be recognized that the practice will be clumsy, wasteful, and unproductive unless it is practice of the right procedure, with adequate provision for constant correction and improvement whenever and wherever these are required. In so far as it is possible, the individual who is striving for skill should be in possession of the information and standards needed for self-criticism. In a very vital sense all criticism must become self-criticism, because it is only as the learner accepts the criticism, and gives it meaning in the light of standards which he comprehends, that it becomes effective for him.

Practice on any kind of activity should be guided by a model or a mental pattern which represents what the learner is trying to attain. The best means of acquiring such a pattern is through observing good teaching. In order for

observation to be most effective, however, three conditions should be met:

First, there should be sufficient preliminary study by the observer of some phase of the work to be observed to enable him to form an intelligent, tentative judgment as to the effectiveness of what is seen.

Second, the points to be made the especial topics of observation in any one lesson should be limited in number, and some preliminary guidance furnished in locating the essential features of these points. An inexperienced observer will be confused in attempting to note too many things, and will consequently have nothing definite to apply.

Third, observation should be systematically distributed, so as to constitute a concrete collateral accompaniment of the study of principles.

Each phase of the work thus supplements the other, enabling the student to effect the proper integration between the principles and the technique of teaching. A unified preparation of this sort equips the teacher with a sound basis for self-criticism, so that practice can be made most fruitful toward the increase of skill.

General responsibilities of the teacher. In what has previously been said in regard to the obligations resting upon a member of any profession, there were implied most of the general responsibilities of the teacher. A recognition of the social obligations devolving upon the teacher in a position so vitally touching the future life of the community will make the beginner keenly sensitive to conditions which affect the physical, moral, and intellectual life of the pupils, and awaken a desire to make these as favorable as possible. The young teacher will strive not only for a confident mastery of the subject matter which is to be used in teaching, but for an understanding as well of the relative values and principles of selection, so that the choice and organiza-

tion of materials will be appropriate to the outcomes desired.

The real teacher will endeavor, through a study of psychology and through personal observation and contacts, to reach a sympathetic understanding of the mental life of the pupils — their interests, their experiences, their individual differences — as well as the normal responses which they may be expected to make to the materials and situations to which they are to be introduced. In a true professional spirit, the teacher will strive constantly to improve the character and standards of the daily work, and to this end will seek to keep informed and abreast of the progressive developments in the field of teaching. Incidentally, the reward for such a program of self-improvement will almost certainly be the establishment of some of the most satisfying interests and friendships which one can experience. Finally, one's whole attitude should reflect the recognition of the fundamental truth that the organization and activities of the school should all center in the child, and that the opportunities, the welfare, the growth, the happiness, and the progressive development of the child are basic considerations by which to judge the merits of any teaching procedure.

The purpose and scope of this text. Not all of the field of preparation suggested in the foregoing discussion can be covered in one course or in one text. Consequently, it is only fair to the reader to indicate what may and what may not be expected in the following discussions. There will be frequent references to studies in the psychology of learning, and some preliminary familiarity with the general field of psychology on the part of the reader is assumed. Problems of curriculum construction and of school organization are touched upon only in so far as they can not be separated from the direct problems of teaching. Attention is there-

fore limited primarily in this volume to an examination of the aims toward which teaching should be directed, a discussion of the conditions essential to successful teaching and learning, an analysis of the various types of learning activity with their significance in determining what teaching must accomplish, and an evaluation of the various procedures and practices by which the basic principles of teaching may be applied and a sound technique of teaching developed. The idea is held throughout that the chief value in such a study must come through the active participation by the reader in the first-hand analysis of teaching problems and the critical evaluation of teaching procedure. Consequently, many problems will be proposed for class-discussion, and, following all but this and the next two chapters, outlines will be given to guide the student in intelligently observing, interpreting, and criticizing actual lessons in which applications of various principles and methods of procedure are to be seen. In this attempt to stimulate independent thought on the part of his readers, the author hopes that the plan of the book may, to a certain degree, exemplify one of the most fundamental characteristics of good teaching itself.

Before taking up the main problem of this text, however, we first wish to devote the two chapters which follow to a consideration, first, of the social objectives the teacher needs to have clearly in mind as a guide in all instruction (Chapter II), and second, the psychological aims and outcomes to be striven for in teaching (Chapter III). After a brief consideration of these, we shall be ready to pass to the detailed study of working conditions, the general principles of the learning process, and the different types of teaching technique with which the teacher will need to become familiar.

PROBLEMS AND EXERCISES

1. List the attributes or requirements which you think are essential for a true profession. To what extent do present conditions with respect to teaching meet these requirements?
2. Of what importance to a prospective teacher is a discussion of the opportunities and responsibilities of the profession? Of what value should it be to a teacher in service?
3. Compare teaching with some other recognized profession in the following respects: attractiveness of work, preparation required, and opportunities for growth.
4. Try to enumerate the reasons which have induced you to advance to your present status in preparation for teaching. What obligations do you feel are incumbent upon you in the way of further preparation?
5. It frequently happens that persons with practically no professional training will pass an examination for a teaching certificate, and take a teaching position for a year or two to secure enough money to carry out other plans. Discuss this from the standpoint of fairness to the pupils and to other well-prepared teachers. What do you think could be done to remedy it?
6. H. G. Wells has said that the teacher is the most important person in society. Do you accept this statement absolutely or conditionally? Justify your answer.
7. In what sense must any great leader be a teacher?
8. Should "principles of teaching" be as valid in industrial life as in the schoolroom? Illustrate how they might be applied by the manager of a department store.
9. What relationship should there be between the observation of teaching and the study of such a text as this? Show how each might help the other.
10. Those who question the value of professional preparation for teaching often use one or the other of these two statements: "If you know your subject well enough, you can teach it." "If you have it in you to teach, you will soon find out how to do it." Prepare a brief answer to each of these.

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CHAPTER II

SOCIAL OBJECTIVES IN EDUCATION

The need for objectives. A discussion of the principles of teaching should deal primarily with the question of how learning may best be stimulated and directed toward desired results. Learning always implies a change in the learner. This change may be for the better, or for the worse. Teaching, however, assumes to direct the learning so that the resultant change in the individual's knowledge or mode of behavior will not only be for the better, but will also take place in the most effective and most economical manner. Many psychological studies have been made of learning activities, the conditions under which each type of learning is best accomplished, and the most effective means of directing the learning process. From these studies are derived the principles of teaching.

The application of these principles — that is, the technique of teaching — looks always toward definite ends, so when we plan to direct learning toward desired results we must know what these ends are. Moreover, the validity of the principles themselves can best be tested in the light of their appropriateness for the accepted ends sought. Our first need, therefore, is to define the objectives of education.

This need has long been recognized by writers on education. Among the many attempts to define the aims of education, Pestalozzi's "full and harmonious development of all the powers of the child," and Spencer's phrase, "preparation to live completely," are famous. The difficulty with these and most other similar definitions has been the need of further defining and explaining the definitions themselves before they can furnish very distinct guidance in

teaching. Modern educators have generally agreed that the expression which best sets forth the aim of education is "social efficiency." This phrase not merely implies the development of the individual, but suggests also the activities and responsibilities for which he is to be prepared, and through which he achieves the fullest success, happiness, and usefulness as a member of society.

The component elements of social efficiency. Any individual who is socially efficient is capable of meeting successfully the responsibilities and opportunities that belong to him as a member of society. This implies that he is, first of all, physically competent. Next, if he is to be an asset and not a liability to society, he should be able through some vocation to be somewhat more than self-supporting. He has learned, also, to use his leisure time in varied and wholesome ways that add to his own happiness and to that of those with whom he comes in contact. As a member of a home group, the basic unit of society, or as a citizen of his community, his state, and his nation, his actions are moral, public-spirited, and efficient. Such an individual is the type of neighbor we wish to have in our community. Public school education aims at producing many such citizens.

The success of any educational plan for attaining such results must depend in large measure upon determining accurately the component elements which make up social efficiency, and setting these up as definite objectives. The results of one such analysis as this was published, in 1918, in the *Report of the Commission on the Reorganization of Secondary Education*. The Commission's list of proposed objectives, toward which all public school education should be directed, has had an important influence upon all later educational thought. Various suggestions for improving and modifying this list have naturally been offered. The

revision which seems to the writer the most satisfactory one yet proposed sets forth the following as desirable objectives: (1) Physical Efficiency; (2) Vocational Efficiency; (3) Avocational Efficiency; (4) Civic Efficiency; (5) Ethical and Moral Efficiency; (6) Worthy Home Membership, and (7) Command of Means of Social Communication.

These objectives are not divergent goals in education, but constitute rather the essentially unified complementary elements of social efficiency. On that account, the fact that in many cases they overlap each other is to be expected and desired. The materials and methods of teaching may aid in the attainment of two or more of these objectives at the same time, but unless at least one of them is being promoted by the material and its presentation without detriment to any of the others, then that particular material or teaching activity is to be challenged and discarded. In short, these objectives in education furnish the ultimate criteria for testing the validity not only of the subject-matter, but also of the principles and technique of teaching itself. We shall consider each of these seven objectives, in order:

(1) **Physical efficiency.** There has been a marked tendency in recent years to emphasize the responsibility of the school for the physical welfare of the child. The type of so-called " physical education," consisting mainly of formal exercises and " stunts " from which the family physician prudently advised excusing the very children who most needed real physical improvement, is rapidly losing favor. In its place is coming a more comprehensive plan for promoting the physical welfare of all children, adapting the program to the special needs of each child, and providing particularly for the physically weak, the underdeveloped, and the undernourished pupils.

It is obvious that reasonable health and strength are

necessary for efficient social participation. The selection and evaluation of materials and activities best adapted to developing and safeguarding this essential foundation are interesting subjects of study, but do not belong directly in this discussion. We are concerned, however, with taking care that we adopt no principles or practices of teaching that are detrimental to physical efficiency. On that account, such matters as classroom routine, periods of close application, the moods and emotional reactions of children as affected by various schoolroom practices, and other factors capable of influencing vitally the physical development and welfare of the child, should receive critical scrutiny in order that no risk of harmful effects be incurred. Since all of these elements that are connected with the working conditions under which learning can most favorably progress will be considered in detail in a later chapter, no further analysis is advisable here. It is in place, however, to emphasize the significant fact that in the best schools of today all procedure must conform to this major objective, and that consequently many long-cherished "methods" and practices are being condemned. The coming view of responsibility in this line is well expressed by Van Denberg, in his *The Junior High School Idea*,[1] when he says: "Indeed, if we are doing our *full* duty as teachers in this newer and most progressive type of school, we can say — and indeed we must say — in answer to any questions as to what we teach, 'I teach physical training (health conservation) and — ' whatever our second or special subject may be."

(2) **Vocational efficiency.** As its second objective the school should prepare our coming citizens to be economically competent — to be able through some vocation to support themselves and those dependent upon them. Strange to

[1] Henry Holt & Co., publishers.

say, this responsibility is being better fulfilled in the case of the long educational road to the professions than that of the shorter but none the less important road to the trades and business vocations. The entire course of eighteen years or more leading from the primary grades through high school, college, and professional school to such professions as law and medicine may be taken uninterruptedly and at public expense — a provision for safeguarding professional standards in which we may take just pride — but that greater group of pupils who cannot or do not complete a full high-school course are allowed to fall out of school, scramble to their feet as best they can, and blunder into such vocations as they chance upon, with very little help from the school in the way of a wise choice or intelligent preparation for that vocation.

The widespread development of junior high schools promises great improvement in this respect. Vocational interest is keenest and in most need of guidance during the junior high school years, and successful plans for meeting this situation are effectively established in some of these schools. The arrangement usually provides not only "sorting and finding" courses, to help the pupils who will continue through high school choose more intelligently their specialized major work there, but also offers immediate vocational preparation to those pupils who will go directly into employment from the seventh, eighth, or ninth grades.

While the curriculum-makers will assign these courses having direct vocational significance to grades above the lower elementary school, there are still important considerations from a vocational standpoint which deserve attention in all grades. In our free democratic society, it is quite as important to have a right vocational attitude as it is to have a vocation. Every child in our public

schools should grow up with the conviction that every useful calling is honorable. He should hold in disapproval the parasite — the individual who enjoys the advantages of civilized society, but is unwilling to contribute to its welfare through some productive activity. The theory that " the world owes me a living " and the aspiration for unearned riches are responsible for a large share of the crimes which menace social security. The chief hope of remedying this condition is in developing a more wholesome vocational attitude through the work of the schools. As Roosevelt once said, " The average man must earn his own livelihood. He should be trained to do so, and he should be trained to feel that he occupies a contemptible position if he does not do so."

Vocational enlightenment and guidance. Still another duty which rests partly upon the elementary school is that of vocational enlightenment and vocational guidance. Reliable information regarding vocational opportunities, requirements, and limitations should be available for every child during the time he is planning or even daydreaming in regard to his future part in the world of affairs. His normal attitude then is an ambition toward useful endeavor. But even more unfortunate, perhaps, than the child who receives no stimulus toward any definite vocational interest is that other child who, without the corrective influence of reliable information, deludes himself with roseate but unjustified imaginings as to some calling for which he has developed a quite accidental liking. The discovery, after it is too late for easy or successful readjustment, that one has been led either by ill-advised enthusiasm or blind drifting into a wholly unsuitable occupation, may plunge the misfit individual into hopeless discouragement or call forth bitter resentment. The numbers of such unfortunate misfits constitute a serious responsibility for organized society.

Apart from subject-matter aimed directly at vocational guidance, there are many incidental ways in which the teacher may be helpful. Projects and practical undertakings affording occupational contacts, first-hand investigations, supplementary readings, and other avenues leading toward a better comprehension of the world of productive activities, will not be overlooked by the resourceful teacher. The pupils themselves, out of their interests and experiences, will have much valuable vocational information to exchange, through the incidental class discussions, if only they are sure that such offerings will be accorded appreciative recognition. The spirit of the class-room which calls forth these voluntary contributions and capitalizes their vocational value will be largely the result of the teaching methods employed.

(3) **Avocational efficiency.** One of the great problems of modern society is that of using satisfactorily the increased margin of leisure time. With the coming of labor-saving and time-saving devices in the home, and the almost universal eight-hour day in industry, the wealth of free time afforded the present generation is unparalleled. The situation carries great possibilities of good or ill, both to the individual and to the community. Few factors are so potent in determining an individual's character, development, and ultimate success or failure as his idea of "a good time," and the consequent practices which he follows in his pursuit of that end. Whole communities come to be rated as desirable or undesirable largely through the character of the prevalent "amusements," and the presence or absence of wholesome cultural and recreational interests.

What it should mean. In proportion to our increased leisure, it can hardly be said that our people as a whole have been successful in practicing varied, rich, and wholesome ways of using this free time. Avocational efficiency should

mean that the individual has developed interests, tastes, and activities of a satisfying character which not only fill abundantly his leisure hours with attainable pleasures, but at the same time render him capable of increased enjoyment, better enabled to do cheerfully his daily work, and richer in his social contacts. It should be, in short, genuinely *re*-creative in character, affording satisfaction unmarred by regrets, and making more enjoyable one's duties and associations in work as well as in leisure. This happy condition in the case of individuals and communities is met only rarely, but it seems to reveal by contrast the pathetic avocational poverty of the restless crowds who, dreading the shadow of ennui, turn unsatisfied from one disappointing or palling thrill to another.

This deficiency constitutes a real menace to social security. Criminologists agree that among the alarming number of juvenile offenders a great many begin with no vicious intent, but are merely trying, as one of them expressed it, "to get a kick out of life." The cure for the distorted values which cause so many to be misled by the glamour of the bizarre must come through developing finer and more wholesome appreciations.

The sources available. If we look for the sources from which leisure-time enjoyments are drawn by those individuals or groups most successful in this regard, we note at once music; the theatre; scientific hobbies, such as radio, plant cultivation and propagation, pet-stock breeding, etc.; social welfare movements; reading — usually current books and magazines; outdoor sports and activities; travel; and — most frequent and most influential — social contacts in clubs, civic activities, group discussions, and those diversions in which agreeable conversation, courtesy, good-humored banter, and harmless amusements constitute the predominant pleasurable element. It is consequently one

duty of the public school to develop interest in and enjoyment of such pursuits and activities, or similar ones which give renewed vigor, broadened sympathies, and a friendlier attitude toward the obligations of society.

Conditions essential to success in avocational education. The native capacities, temperament, and tastes of the individual pupils will have a strong influence in determining the field in which recreational satisfaction is sought, but the quality of material or activity preferred within any field will usually be influenced more by the method of presentation than by any other single factor. It is a fundamental law of psychology that the individual chooses those things which afford him the most satisfaction, so, if the teacher wishes the child to select the best kind of reading material, to prefer good music and art, to become interested in scientific problems, to choose wholesome social activities, and to display good sportsmanship in groups and contests, then he must contrive that the introduction to and practice in those studies and activities shall be attended with satisfaction on the learner's part. As will be shown in a later chapter, this satisfaction is not secured by making the work merely easy and entertaining — such capitulation more often breeds contempt — but there is implied the duty of organizing materials and directing activities in such ways as to awaken appreciations, to challenge voluntary efforts and investigations, to arouse wholesome emulation, and to inspire adherence to such standards of consideration and fairness to others as will concede generously their rights, and thereby merit corresponding security and happiness for one's self.

The difficulty and need. The attainment of this objective probably calls for greater skill on the part of the teacher than is required by any of the others. Any use of compulsion — the frequent resort of the inferior teacher —

is destructive of the spontaneous quality that must eventually characterize the chosen activities. The teacher must, therefore, meet the pupil upon his own ground of native interests and there win a willing response of appreciation for the things that deserve permanent approval. Difficult as this task appears, its accomplishment may be assured in accordance with definite principles of learning. Moreover, the importance of this objective to the individual and to society justifies the most critical revision of our teaching procedure in order to promote its successful attainment.

(4) Civic efficiency. With the development of civilized society, and the increasing complexity of the machinery which serves human needs and interests, the task of maintaining an organized control such as will preserve this complex fabric, and yet safeguard the rights and privileges of each individual in it, becomes more and more difficult. This organized control we call government, and in America, at least, it is the general conviction that the authority for this control should come from the people themselves; that the direction and administration of it should be in the hands of the people or their chosen representatives; and that all of its activities should be directed toward securing the greatest good for the people. The successful and efficient maintenance of the popular control and participation requires an enlightened, loyal, and competent citizenship.

Dangers of irresponsible citizenship. The dangers that menace any people attempting to enjoy liberty, without providing at the same time for a competent and educated body of citizens to safeguard the administration of that liberty, have often been pointed out. Such a condition furnishes easy opportunity for the demagogue, the usurper, the visionary, or the irresponsible revolutionist. Even in enlightened America it is not difficult to find groups, or even whole communities, accepting blindly the most irra-

tional and misleading propaganda in respect to government. It was peril of this character which Jefferson feared when he said, "If a nation expects to be ignorant and free in a state of civilization, it expects what never was and never will be." Prompted by a similar realization was Washington's famous advice, "Promote, then, as an object of primary importance, institutions for the general diffusion of knowledge. In proportion as the structure of government gives force to public opinion, it should be enlightened." With the growing complexity of pathways in the educational field, we shall need to mark well the road toward that civic enlightenment demanded by the fathers of the republic.

What civic education must include. One of the foremost needs in such enlightenment is a sympathetic understanding of the struggles, aspirations, and influences which produced our present political structure. Certain phases of our governmental machinery could no doubt be improved, but the task of determining and effecting any needed revisions can most prudently be entrusted to those who know why each salient feature took its present form, what was the price in sacrifice and effort paid for each privilege and principle, and what were the past perils that have threatened the freedom and permanence of our institutions. During the troubled years immediately following the World War it was impressively demonstrated that the economic welfare, the personal security, and the opportunities for progress on the part of the people of any nation were all dependent on the character and stability of their governmental organization. Our experience through those years, and at other times of crisis, has deepened the conviction of most Americans as to the necessity for safeguarding, from hasty, ill-informed, and unsympathetic individuals, the institutions and relationships which have thus far furnished

satisfactory forms through which to realize our desire for free government.

Along with an appreciative understanding of the development of our governmental activities should go a similar comprehension of the many added details of control and supervision which the State and Nation assume to-day, and the conditions which demand and justify these extensions. Finally, there must be developed appropriate habits and trustworthy responses to the ever-recurring situations that call for harmonious coöperation between the individual and such forms of government as touch him directly.

Importance of right methods. The selection of materials and activities best adapted to promoting these results is a task that belongs primarily to the makers of the curriculum, but the manner of their presentation will determine the spirit in which these materials are received by the pupils. From the standpoint of civic efficiency there is an immeasurable difference between a matter-of-fact understanding of a citizen's duties, and an *appreciative* understanding of those same duties. In a democracy, a spirit of loyalty, respect, and willing acceptance of justly established authority is quite as necessary as adequate information and appropriate habits. This spirit and acceptance are best secured through a gradual realization by the pupil that authority as he meets it and in what is probably to him its most direct form — that is, in the school organization — is on the whole a desirable and beneficial thing. Such a consummation can be attained only through skillful management and carefully timed instruction.

The balance wheel of citizenship. The attitude of the individual toward the civic control and responsibilities to which he must adjust himself, affects fundamentally his other relationships. The youth who rejects such control and tries to subvert law and order is likely to be a voca-

tional and moral malcontent as well. On the other hand, the prospective citizens who feel a loyalty to State and Nation sufficient to accept the restrictions and obligations that must go with such relationship, are likely to be also vocationally ambitious, recreationally and morally commendable, and characterized by pride in and loyal support of their homes and other worthy social institutions. If the dream of a World-State, a "Parliament of Man," is ever to be realized, it will be, not through shirking civic responsibility to one's own Nation, but through an earnest citizenship that realizes the need of larger group coöperation. In this way our own Nation evolved from a coöperative band of sovereign States, each composed of citizens intent on patriotic service to, and through, the largest political unit capable of effectively safeguarding their own rights and the rights of their fellowmen.

(5) **Moral efficiency.** The responsibility of the school for the moral development of the child has long been recognized. This aim in education has frequently been designated as "character-building." In fact, the first schools established in America were officially dedicated by their Puritan founders to the mission of outwitting "that old deluder, Satan." Most attempts at moral education have looked to religion as furnishing the needed sanction for right conduct, but, whether wisely or not, most of our States have decreed against the teaching of religion in the public schools. Consequently some other basis must be found for justifying the rules of conduct imposed by society, and for securing their willing acceptance by the young citizens who attend the public schools. This means that there must be taught, through the medium of class-instruction and the laboratory of school life, a simplified but adequate system of social ethics.

The task of moral instruction. Historically the duty of

moral instruction has rested primarily upon the home. One of the most serious problems of modern society arises from the fact that in too many homes this duty is ineffectively performed, or neglected almost altogether. By guiding and supplementing the moral influences of the home, the Church has also been a powerful factor in promoting right conduct. This agency is still exerting a wholesome moral influence upon great numbers of young people, and it is a matter of general regret that this influence is not more widely effective. Certain developments in modern social life, though, have operated to limit, at least for the present, the effectiveness of both the home and the Church as agencies for moral training. However much these developments may be regretted, the added responsibilities thus entailed must be accepted by the public schools, and a moral preparation provided appropriate to the new needs and the changed conditions.

Some of these circumstances which have brought new responsibilities to the teacher have arisen from the greater variety and intimacy of social contacts. Revolutionary changes in transportation, communication, industrial activities, and opportunities for amusement and recreation have urbanized every community, removed much of the privacy and interdependence of the family group, and demanded of the individual many new and intensive social adjustments. These changes call for a redefining of moral values. Many activities which were formerly of only individual concern have taken on a moral significance because of their bearing upon the safety, rights, and well-being of immediate neighbors. It is in this matter of the welfare of the social group that social ethics finds the sanction and test of morality. As Bobbitt states it: "Good moral conduct is that which increases the total sum of human welfare."

When the statement was made in a preceding paragraph that the school must find some sanction for moral conduct other than a religious one, there was no implication of conflict between them. The basis of all moral codes must be fundamentally the same — the regulation of the conduct of the individual so that he shall find his well-being in harmony with the best interests of the group. The Ten Commandments have stood as the greatest moral code of history because of their clear definition of those fundamental social obligations. When Christ compressed the essence of these into a single commandment, he was emphasizing the interdependence and identity of interest among the members of a social group. So, in the absence of religious instruction, the task of moral training becomes that of consideration for the rights of others, stimulating feelings of loyalty toward the social group and toward the qualities essential for its welfare, and gradually leading the child to accept a philosophy of morality which evaluates conduct in the light of the best interests of all — a conviction that the rights and happiness of the individual are to be attained in harmony with the rights and happiness of others.

The school as a social laboratory. Since the special problems of moral conduct are largely in connection with the intensified, intimate social contacts of modern life, it would seem that the most logical place in which the future citizen may be led toward their correct solution is a social laboratory in which fairly similar conditions are to be found. The school is such a place with the added advantage, appropriate to a laboratory, of having these social activities reasonably safeguarded so that mistakes are not attended by the disastrous results that may follow transgressions in life outside, but at the same time receive more immediate and just correction.

Without extending our discussion here to the materials through which morality can best be developed, we should recognize its responsibilities as furnishing criteria for evaluating teaching activities and school-room organization. Instructional practices and management which do not result in a strengthening of pupil self-control, a respect for and observance of the fundamental virtues necessary for social welfare, and a growing disposition to judge conduct in its relation to the general good, are falling short in one of the most vital phases of education.

(6) **Worthy home membership.** In the discussion of moral efficiency, mention was made of the fact that the home had lost some of its former influence in regulating the conduct of the younger generation. The increasing percentage of divorces, and the lightness with which home responsibilities are very generally regarded, indicate that the traditional home relationships are threatened with disintegration. Society must either accept this decadence and the consequences that will follow, or attempt through education to prepare the coming generation to maintain, under the changing conditions, the integrity and worthy influences of the home. No one who has even the slightest knowledge of the relation between home conditions and juvenile delinquency will doubt as to which course society must choose for its own safety. The home and family constitute so fundamentally the basic social unit of our civilization that continued deterioration in them would threaten all our institutions. The only question is as to the procedure educationally to bring about better home conditions and worthy home membership.

The nature of the problem. While it has generally been agreed that it is the primary function of public school education to prepare pupils to perform better their duties as members of an organized society, there has been rather a

general avoidance of definite effort to improve home relationships. Such beginnings as have been made have been mainly in the nature of "home-making" courses in the junior and senior high school. These can be made of great value, but if we admit the social importance of the home, and its present need of renewed influence, we must agree that educational help should reach a much greater number of children. In other words, this aim must be given validity as a directive force through all grades of public school work, if appropriate results are to be expected.

What can be done? The fact that no definite progress has been made in dealing with this objective has perhaps been due to a feeling that some of the problems involved are too delicate and difficult for the public schools to undertake. Such a conception of the scope of this aim as thus implied is unnecessary. It has been well said that the best possible preparation of the child for worthy home membership when grown up is through leading him to fulfill worthily his responsibilities in the home as a child. In this way help may be given not only to future homes but to present ones as well. Above all, the child should come to have respect for the home as an institution, and the earnest teacher will never lose an opportunity to counteract the pernicious tendency, which seems surprisingly prevalent, for children to feel in some way ashamed of their home or parents.

The writer once heard a group of pupils in the second grade discussing, under the guidance of a skillful teacher, the kind of home and parents they considered best for a child to have. There was an emphatic and apparently sincere preference for a "homey" family, where thoughtfulness and firmness were predominant parental characteristics. When the discussion turned upon how children could help make their own homes more like this, suggestions were volunteered by these juveniles, which, if carried out,

would help many perplexed parents of the present day. If the encouragement of such an attitude were more generally the conscious aim in the schoolroom, many opportunities would be found for wholesome influence in this direction.

In the attainment of this objective, the methods of instruction and the tactful direction of spontaneous discussions are probably more important than any direct materials that have as yet been worked out for the curriculum. Some valuable suggestions have been offered in the latter connection, such as the hygiene of the home, family budgets, and home projects, but, since an appreciation and respect for the home responsibilities are perhaps more vital even than the information mentioned, this objective will deserve appropriate consideration in connection with later discussions of classroom practices and technique.

(7) **Command of means of social communication.** There are many items of skill which are essential to efficient social life. Most of them, however, are important indirectly as contributing to some of the objectives already mentioned. For example, a reasonable degree of skill in arithmetical calculation is necessary for vocational efficiency. There is, though, a group of skills so indispensable to social participation of any worthy sort that it deserves an independent place as a social objective. This objective has been termed the "Mastery of Means of Social Communication," although a briefer designation would be desirable.

In the intimate relationships of our highly organized modern life the usefulness and efficiency of an individual are directly dependent on his ability to communicate successfully with his fellowman. His safety, happiness, and influence require a proficiency in the customary means of expressing his own thoughts and feelings, and interpreting the corresponding expressions of other members of society. These means of communication include not only spoken

and written language, but also, to a certain extent, the manners and customs that obtain in civilized society.

The importance of precision in expression. The value of skill and precision in the use of language is likely to be underestimated. In the multiplex social contacts of the normal individual, his language not only serves to express successfully or unsuccessfully his thoughts, but also reveals much more. It determines the character of the impression made upon others, and through it he may be rated as intelligent, shallow, logical, vapid, accurate, or insincere. While there may be some truth in the cynical observation that the purpose of language is to conceal thought, it is also true that language frequently reveals much more than the user intends. Modern society is quick to appraise the capacity, training, reliability, and breeding of an individual from his speech. With opportunities for education so nearly universal as they have become, uncouthness and ineptitude in the use of the mother tongue become an increasing handicap. Very few teachers succeed in impressing their pupils with the true importance of precision and versatility in the use of English.

Need of skill in interpretation. The ability to use language in such a way as to produce the impression one desires, needs as its complement a corresponding power to comprehend readily and clearly the spoken or written language of others. Modern man is so surrounded with newspapers, magazines, pamphlets of propaganda, circulars of explanation, and volumes of information, to say nothing of lectures from the platform, discussion on the street, and radio instruction from the air, that he needs no little skill in discerning quickly the significance of such information as may affect his welfare. Training in silent reading and in the rapid selection of needed information from the quantities of printed material available is now recognized as one of

the foremost functions of the school. Consequently the technique of teaching must give due consideration to this project. Not only does it constitute an essential tool in the attainment of the other objectives, but is in itself a constant necessity for worthy participation in the activities of society.

Manners and conventionalities. A discussion of this objective would not be complete without noting the fact that social communication is not limited to spoken and written language. Everyone knows that the custom of handshaking is a conventional means of expressing good will. In the same way most of the customs and conventionalities of modern society represent ways of supplementing or replacing mere language as a means of indicating esteem, honor, hospitality, or other social attitudes. Since the conditions of civilized life seem to decree an intensified social existence for most persons, it is highly important, both for the individual and for those who come into contact with him, that he acquire the manners and habits of adjustment which enable him to keep those contacts free from unnecessary misunderstanding and friction. Proficiency in this regard is a marked asset toward leadership, business advancement, social influence, and friendly associations.

Consequently the best teaching procedure provides for many socializing activities. These may include group projects, discussion clubs, and so-called extra-curricular activities which, when wisely directed, are of great value in developing initiative, ease, and facility in working harmoniously with others. Ability to comprehend and to influence one's social environment, and the consequent development of a cheerful "give and take" attitude in social contacts, constitute an all but indispensable element in the preparation for the wear and tear of modern life.

Summary. Since the school exists to prepare individuals

for effective participation in the life of organized society, the work of education can be intelligently planned and carried on only when the requirements for such participation are clearly understood. The requirements correspond to the physical and institutional needs of the individual, and constitute the social objectives of education. Of these, physical efficiency comes first, as providing the basis for all the others. Vocational efficiency represents the preparation for self-support and competent participation in economic activities. Avocational efficiency connotes appropriate preparation to use wisely and profitably the individual's leisure. Civic efficiency includes the knowledge, skill, and disposition to coöperate worthily in using, maintaining, and improving the machinery of organized society in its various units of control, as the community or municipality, the State and the Nation. Moral and ethical efficiency signifies the possession of the social virtues which are essential to the security and well-being of the social group. Worthy home membership as an objective betokens fitness to assume and appreciate the responsibilities and obligations belonging to a member, large or small, of a home group. Finally, the command of the means of social communication provides for making social coöperation possible through a working mastery of oral and written language and other conventional means of expressing thought and feelings. Together these constitute the social objectives of education. The formulation of principles and the development of the technique of teaching must not only be in harmony with these objectives, but must also provide practical means for attaining them.

PROBLEMS AND EXERCISES

1. Name some of the issues upon which modern citizens must vote which call for a broader social preparation than was formerly thought necessary in public school education.
2. How many of the social objectives as discussed are now being insufficiently emphasized in the schools? Justify your answer.
3. Explain why the social phases of education are more complicated in a democracy than in other types of government.
4. It is sometimes said that teachers are not generally concerned about the aims of education. To what extent is this true, and what are the reasons?
5. It is not an uncommon practice for physicians to request that weakly children be excused from physical education. What justification is there for this? What educational duty does this place upon the school?
6. It has been said that recreational activities influence character more profoundly than any other kind. To what extent is this true, and what are the causes?
7. Have the limitations placed on religions instruction in the public schools been due to hostility toward religion, or to jealousy among advocates of different religions? How can a basis for the teaching of moral conduct be found independent of religious teaching?
8. What is meant by the statement that the school is a social laboratory?
9. In what ways can the work of the elementary school contribute toward vocational efficiency?
10. Is the command of the means of social communication a social end, or merely a means to an end? Justify your answer by a comparison with physical efficiency.
11. "Morals and manners" are frequently treated together in outlining courses of study. Explain in what respects they are closely related, and how they are clearly different.

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CHAPTER III

THE PSYCHOLOGICAL AIMS AND OUTCOMES IN TEACHING

What teaching can accomplish. In the preceding chapter we considered the social objectives which are indispensable as defining the ends toward which education must be directed. These do not, however, indicate the immediate units of accomplishment with which the daily activities of teaching are concerned. One can not teach physical efficiency, as such. Nor do pupils study and recite lessons in avocational efficiency. The attainment of any of the objectives set forth in the previous chapter is possible only as a composite achievement made up of many smaller elements of change and growth. Just as most of the daily work of the builder deals with brick and lumber and plaster, so most of the effort of the teacher is occupied with comparatively small but fundamental units of learning which later combine into the end sought. These day-to-day changes and results are psychological in character, and it is through them that the teacher must work.

The psychological products of learning. Learning can take place only through the activity of the learner; it is never a matter of passive reception or absorption. Learning is, then, a process of reacting to the stimulus of a situation. It is a fundamental law of learning that the individual tends to repeat the reactions that afford him satisfaction, and to avoid those that cause him annoyance. As a result of finding certain reactions satisfactory he gradually acquires modes of behavior, reasonably uniform for recurring situations. The opportunity of the teacher lies chiefly in such control as may be exercised over stimulating and guiding

the pupil's activity, and over the subsequent satisfaction or annoyance attending his response to the situation provided.

The learner's reaction to a situation has in fact three characteristic phases. These are all present under normal conditions, to a greater or less degree, each having its share in the totality of the learning experience and leaving behind its particular modifying influence to affect future reactions. These are, first, a tendency to repeat the response, if a successful one, whenever a similar situation occurs; second, a feeling of satisfaction, annoyance, or other affective quality; and third, a meaning which is given to the experience through associating it with other experiences. The form which a particular reaction takes is usually such as to make one of these prominent — sometimes to the extent of almost wholly obscuring the other two. Consequently, we recognize three types of result or outcome of learning activity, corresponding to the varying emphasis noted above. These are known as: (1) habits and skills; (2) attitudes and appreciations; and (3) knowledge or information. The fact that the form of learning-reaction by which a given phase is emphasized, with its characteristic product, is distinctive in type makes possible the formulation of principles and the development of a technique of teaching appropriate to each type of desired reaction. These will be taken up in detail in separate chapters later, but it is proper to examine now the characteristics of each type, and the part it plays in the work of the schoolroom.

1. *Habits and skills*

The place of habit in education. Habit is an acquired tendency to react always in the same way to the same stimulus. It includes those countless automatic responses to familiar situations which the individual has built up in the past, and of which he has almost ceased to be conscious.

In his *Educative Process*, Bagley estimated that habit is nine-tenths of life, and he added that the formation of habits should bear a somewhat corresponding ratio to the total task of education. Rowe, in his *Habit-Formation and the Science of Teaching*, went even further in insisting upon the importance of habit-formation as the major concern of education, and in declaring that habits occupy a much greater place in our mental and physical life than is ordinarily supposed.

Careful analytical studies made during the past decade have not only confirmed the accuracy of these judgments, so far as the fundamental processes or " tool-subjects " are concerned, but have thrown valuable light on the exact character of the habits involved. For example, studies in the psychology of spelling, handwriting, arithmetic, or silent reading reveal the precise nature of the habits needed, and the normal steps in their effective mastery.

An examination of the extent to which the work of the school is concerned with processes which should be made automatic will demonstrate the importance of mastering the technique of teaching such activities. Within the field of habit belong most of the processes of reading, both oral and silent, especially such elements as recognition, eye-movement, phrasing, and pronunciation. Language, whether oral or written, is still more completely a group of habits, good or bad, which have been established by usage. Spelling and handwriting are predominantly habit-subjects, as are all the fundamental processes in arithmetic. " Health-habits " now constitute the most important aim of hygiene and physical education. Right conduct, courteous manners, and observance of social regulations, while needing something more than a merely mechanical basis, nevertheless, depend for efficiency in expressing good will upon the confident ease of well-formed habits.

The above list might be extended, but further enumeration should not be necessary to make clear the importance of correct habit-building, and the corresponding importance of developing a technique of teaching that directs the process most accurately and most economically.

Skill and habit. Habits are usually of the greatest value to the possessor when they are coördinated and utilized in accomplishing needed results. A habit in itself is merely an automatic response. It may or may not be appropriate, useful, or desirable on a given occasion. In fact a habit reaction, normally quite appropriate, may sometimes occur embarrassingly out of place. Skill adds to habits an element of judgment and conscious direction, so that only those reactions are stimulated which are useful for a desired end. The skill of a cobbler may be shown in effectively coördinating a score or more of the habitual acts of his craft toward the manufacture of a pair of shoes, which may be unlike any he had ever made before. A good automobile driver has acquired many habitual reactions which function almost unconsciously; his skill in driving over a strange and difficult road will depend upon the way in which he makes selective use of these habits, and sets in action the most appropriate one for every contingency. A skillful speaker relies upon his established habits of usage, pronunciation, and inflection, and makes these the tools of a well-planned, conscious purpose.

It may thus be seen that skill rests upon a foundation of habits. The series of habits necessary to the accomplishment of a certain purpose may be called for so frequently in the same connection as to establish essentially a new series-habit, so that only slight conscious direction is necessary for controlling the performance. On the other hand, skill may be of a sort in which habit seems to play a very slight part, such as in problem-solving, construction, or literary composition. Quite apart from the fact that an analysis of

these activities reveals a greater dependence on habit than is at first apparent, it is also true that the development of skill, even in such fields as these, usually requires a procedure very similar to that in habit-building, so that from a teaching standpoint the two belong in the same group.

2. *Attitudes and appreciations*

Their importance in education. The fundamental need of right attitudes and wholesome appreciations is realized by most thinking people. If we examine any one of the social objectives discussed in the previous chapter, we shall find that an indispensable element in its attainment and maintenance is the possession of right feelings as to values. In the matter of morality, for example, a just appreciation of worthy conduct and a proper attitude toward ethical obligations are necessary to induce the individual to put forth the effort required to make and keep moral conduct habitual. An adequate and just appreciation of civic duties is the first step toward their performance. Similarly, one's appreciations and feelings as to what objects and activities are desirable determine how leisure time will be spent and what avocational interests will be followed.

The meaning of terms. The two terms used above must be given a somewhat broader application than they ordinarily have in popular usage if they are to denote all the typical reactions that belong in this important group. In the attempt to find an adequate term to apply, writers have used not only the two named at the head of this section, but also others, such as ideals, vital interests, tastes, prejudices, sentiments, good will, and emotionalized standards. All of these have the common characteristic of indicating a mental product which is predominantly *emotional* or *affective* in its nature. This very fact makes for a sort of looseness in general usage, so that, while each term emphasizes

some phase of the field, none is quite as definite or inclusive as is desirable. What is needed is a means of signifying those ideas, beliefs, and criteria which, in the case of any individual, have taken on such an affective character as to predispose him toward certain choices in matters of conduct, judgment, taste, amusement, and, in fact, his whole field of selective behavior.

For the purpose of this discussion, the words *attitude* and *appreciation* seem the most appropriate. *Attitude*, in the sense of an *emotional set*, or *predisposition* toward a certain type of response, is a fairly satisfactory term. Perhaps the term *appreciation* is even better in its original meaning of *setting or feeling a value* for the object or activity concerned. The latter two terms will be used in this discussion as signifying those products of the individual's experiences which have a predominantly affective or feeling tone, and which predispose him toward a corresponding type of choice or response, affording him satisfaction when a situation or activity harmonizes with this standard, and annoyance when he is subjected to a situation out of harmony with this standard.

Classes of appreciations. These appreciations fall into three classes, sufficiently distinct to influence directly the procedure in teaching. These are aesthetic, intellectual, and social. Strayer and Norsworthy add a fourth, the appreciation of humor. Although in doing this they are emphasizing a very valuable phase of the child's developing appreciations, yet the form of enjoyment which they describe is, in so far as it affects educational selection, either a social appreciation or else the enjoyment of wit, which is clearly an intellectual appreciation. A brief examination of the scope of each of these classes of appreciations, and the place of each in the developing activities and experiences of the child, is of importance for our purposes.

(*a*) **Aesthetic appreciation.** This class comprises the tendencies to derive enjoyment from sense stimuli. The child's instinctive tendencies to enjoy certain sounds, colors, movements, shapes, and similar qualities capable of providing sense-stimulation may, through a proper succession of experiences, responses, and satisfactions, develop into a rich capacity for appreciating fine music, art, architecture, grace of form and movement, the majesty and harmony of nature, exquisite qualities of materials, and similar refinements of taste which constitute some of the most valued attainments of civilization and culture and add immeasurably to the richness of the individual's life. Such appreciations are not only intrinsically desirable, but they also wield a powerful influence through their associations, which are almost always favorable to desirable forms of social and intellectual activities.

(*b*) **Intellectual appreciations.** In this group belong those tastes which find satisfaction in comprehending the achievements of thought and skill. The enjoyment which we derive from appreciating the precision of a cleverly designed machine, the exquisite style of a brilliant writer, a pleasing command of spoken language, the masterful organization of ideas and factors in a great industrial plant, the construction of the Panama Canal, or similar demonstrations of the inspiring achievements and possibilities of human intelligence, is illustrative of this class. Such satisfaction finds its instinctive basis in the inborn desire for achievement, mastery, emulation, and, perhaps most of all, the distinctly human instinct of mental activity. The tendency to derive satisfaction from such sources may develop into a passion for intellectual pursuits in such lines as pure mathematics, philosophy, or science. Humanity owes much of its progress to interests in this field.

It is of especial importance, from the standpoint of the

child's education, that he develop appreciations of this type, since it is largely through his admiration for skill in expression, accuracy in computation, and precision in performance that he comes to feel dissatisfaction over his own clumsy and inadequate attainments. Such campaigns as "Better English Week" show a recognition of the fact that the standards of the children must be vitalized through some appeal to their feelings before effective effort for improvement will be put forth.

(*c*) **Social appreciations.** This group is the largest and most important, both for the happiness of the individual and for the welfare of society. The wide variety of phenomena which are essentially emotionalized ideas, judgments, beliefs, or predispositions of a social character, and which largely predetermine whether a social fact is to receive that individual's approval or not, is responsible for a corresponding diversity of terms. For example, if such emotionalized ideas and beliefs coincide with our own we designate them as worthy *sentiments*, while to the person who disagrees they are appropriately termed *prejudices*. The latter term is an excellent one, except for its customary suggestion of disapproval, in that it signifies the very human tendency to prejudge all new questions in accord with the most cherished beliefs already held. It is reasonably safe to predict that one's future choices will be consistent with those past choices, worthy or unworthy, which have been attended with satisfaction. Upon this principle rests not only the continuity of our political parties and religious denominations, but the stability as well of society itself, with its accepted moral valuations, conventions, relationships, and institutions.

The educational implications of the general truth set forth in the foregoing paragraphs may be more readily seen by examining a single emotionalized standard of the social

type. The quality of *loyalty* is generally accepted as one which is essential to the happiness of the individual and to the welfare of any social group, however small, of which he is a member. For the child, though, gradually becoming cognizant of the idea *loyalty* through his experiences, the important consideration is whether those experiences, with their attendant satisfactions or annoyances, have clothed the idea with a warm affective tone, predisposing him to the right type of response whenever a situation arises in which loyalty is involved. In short, has he acquired a genuine appreciation of loyalty, so that its exemplification, either by himself or another, affords him a sense of satisfaction while a violation of it awakens in him humiliation or resentment.

If such ideas as loyalty, honesty, or truthfulness are merely intellectual abstractions unattended by any emotional valuation that urges toward their observance, then an important potentiality of development for the individual has been atrophied or distorted, while society in general has suffered a distinct loss. When we consider the long list of social qualities of which this is equally true, such as that formulated by the National Council Committee on Moral Education — " obedience, kindness, honor, truthfulness, cleanliness, cheerfulness, honesty, respect for self and others, helpfulness, industry, economy, justice, usefulness, patriotism, courage, self-control, prudence, benevolence, system, neatness, politeness, fortitude, heroism, perseverance, sympathy, consecration to duty, unselfishness, comradeship, patience, temperance, hopefulness, determination, and fidelity " — we can realize the necessity, both for the individual and society, of directing the child's learning-experiences so as to give emotional vigor to these qualities, and ensure that the predispositions acquired be in the right direction and associated with proper activities.

Combined types of appreciations. The same object or activity may call forth different types of appreciation in different persons, or a combination of types in the same individual. For example, in listening to a rendition of Handel's "Messiah," one individual may enjoy most the *rhythm*, *harmony*, and swelling *tones* that awaken aesthetic appreciation; another may be most delighted with the *technique* of the performance, the precision of the concertos, the artistic finish of the solos, and other features of an intellectual type which appeal to the critical mind; while a third may respond most to the *social appeal* of the *theme*, and be stirred by the portrayal of the sublime character of the Man of Sorrows. In fact, the same individual may enjoy all three phases almost simultaneously, and the more completely this is true, throughout life, the richer is likely to be the satisfactions of the individual and his value to society.

While two or more types of appreciation may be aroused by the same situation, we must not forget that they are built up from different sources, and are stimulated by different phases of the situation. In literature, for example, it would be desirable for a class which was studying *Evangeline* to derive aesthetic pleasure from the majestic rhythm, music, and word-pictures of the poem; to find intellectual satisfaction in examining the plot, the extent of historical accuracy, the scansion, and the secret of style and construction, by which the effects are secured; and, finally, to thrill in sympathetic admiration of the "beauty and strength" of a Love "that endures and is patient." No greater mistake can be made, though, than to assume that extended analysis and scansion will heighten the last-named type of appreciation, or that classifying figures of speech will build up an emotional predisposition toward loyalty and perseverance as attractive qualities. Not only does

each type of appreciation have its appropriate approach along which the activities of the child should be directed, but inopportune emphasis on the other elements may defeat the purpose altogether. Attempting to get the child to watch all three rings of a circus at once may spoil the whole show for him. To the child, each really satisfying experience seems " the best," a unity sufficient unto itself, and it should be allowed to complete whatever valuable contribution it may have to make toward his permanent attitudes before other objects of attention are proposed.

Need for careful teaching. An unusual amount of space has been given to this discussion of attitudes and appreciations, partly because of their extreme importance if public school education is to perform its true service to society, and partly because they are so often badly taught. In an attempt to discover the principles of teaching involved, and to develop a technique of presentation reasonably sure to secure the kind of attitudes or appreciations desired, all the classifications made and distinctions emphasized will be found to have importance.

3. *Knowledge or information*

Overemphasized in past. The importance of knowledge as a characteristic possession of an educated person is so obvious that there has usually been a tendency to regard it as almost the whole concern of teaching. The result has been that children learned facts *about* literature, civics, hygiene, or even morals quite out of proportion to the changes in the way of quickened appreciations, better citizenship, improved health-practices, or good conduct.

On the other hand, a proper amount of organized information is indispensable as a basis for trustworthy judgment. The modern scientific spirit in education has done valuable service in distinguishing the material which should be

taught as knowledge from that in which teaching should aim primarily at a different kind of outcome.

Learning and applying knowledge. The natural result of a more definite conception of the part knowledge should have in education has been a correspondingly clearer understanding of how the teaching of it may be improved. The indiscriminate use of memorizing was found to be wasteful and its results unsatisfactory, when the real test came of using and applying the knowledge learned. There was recognized the need of having the pupil master facts and principles by a method that corresponded as closely as possible to the form in which these particular items of knowledge would later need to be used. The outcome has been the development of some very interesting practices in teaching, and these will be discussed in detail in later chapters.

The point to be emphasized here is that, since only those facts and principles should be taught which contribute definitely toward the attainment of our objectives, the teaching of them should be influenced by their use and relative values. A comparatively small number of items are so important or will be needed so frequently that it will be economical for the pupils to memorize them. This should be intelligently and systematically done, without the confusion or added burden of attempting to memorize any unnecessary features. Other facts will have merely a transitory value, and need be held only until a crossing is safely made to more important ground. Finally we shall do well to keep in mind that the real test of the mastery of knowledge is not only the power to reproduce it when needed, but the ability to make effective use of it when it is at hand. Unless we acquire a technique of teaching which helps pupils develop this power to apply knowledge, whether in guiding their establishment of habits, in furnish-

ing a basis for worthy attitudes, in the solution of problems, or in some other useful way, we are merely loading them with worthless freight. Knowledge rightly learned should be felt as a source of strength and help, rather than as a load to be borne.

The relation of aims and objectives to teaching. Most of the ineffective teaching to be observed in the public schools is aimless teaching. Such teachers apparently have no purpose beyond the pages to be covered, and consequently have no perspective by which to give order and vital meaning to subject-matter. An intelligent application of principles of teaching is dependent upon a realization both of the ultimate goal and of the more immediate steps along the road. These introductory chapters have been given to a detailed discussion of objectives and aims in the hope of saving teachers from this pernicious fault of aimless recitations. Every worth-while lesson must bring about definite progress toward the establishment of a useful habit, must stimulate more wholesome attitudes or heightened appreciations, or must lead to the mastery of some valuable information. The efficient teacher realizes this, and realizes also that a period spent without demonstrable progress toward such an attainment is usually so much time lost in the all-too-brief opportunity to accomplish the ends of education.

Summary. Education seeks to produce certain changes in the learner. These changes must be primarily psychological in character, and are the result of the responses which he makes to the situations with which he is confronted and the activities which he is induced to perform. The psychological changes are of three types, and the immediate aims in any teaching activity will be to bring about one or more of these outcomes. The formation of habits and the development of skills constitute the first of these psychological aims. This group includes a great majority

of the activities which the public school attempts to teach, and their effective, economical mastery is possible only through the observance of psychological laws. The second group, known as attitudes and appreciations, includes those responses in which the emotional element is predominant — the likes and dislikes, loyalties, antipathies, enthusiasms, tastes, resentments, prejudices, and similar reactions which are of tremendous importance to the individual and to society. To guide successfully the attainment of desirable outcomes of this type is one of the surest proofs of good teaching, and calls for a clear understanding of the principles involved. The third group consists of knowledge or information. The real mastery of knowledge includes not only the recall of needed facts and principles, but the ability to use them appropriately and effectively. The teaching of such material should accordingly be influenced by the probable use as well as the relative value of the information.

Each of these types of psychological outcome has its characteristic learning process by which the aim is to be reached. Accordingly there will be an appropriate lesson-type corresponding to each, which is to receive special treatment in a later section of this book. While each lesson is directed toward some of these immediate aims, the teacher should not lose sight of the social objectives, in accordance with which all phases of classroom organization and instruction must be evaluated.

PROBLEMS AND EXERCISES

1. Why is it important for the teacher to distinguish the exact psychological aim in any lesson?
2. Give examples of activities in which habit and skill are synonymous; of some in which they are not identical.
3. Make a list of at least ten specific habits which pupils have usually acquired before entering school. Show how some of these are of advantage in school work, and how others must be modified or supplanted.

4. Explain and illustrate how habits, attitudes, and knowledge are all necessary for good moral conduct. Do you think it would be advisable to try to teach them all at the same time?
5. Explain the distinction between wit and humor on the basis of types of appreciation. Which has the greater value for conduct, and why?
6. Explain why the teaching of literature often fails to produce permanent improvement in the reading tastes of pupils.
7. To what extent is it true that the schools have overemphasized knowledge in the past? How do you account for this tendency?
8. Is it true that knowledge is not really mastered until the learner can apply it? Explain and illustrate your answer by some particular fact in science.
9. Show how a teacher in geography might on one day be emphasizing habits, on another knowledge, and on still another appreciation.
10. Why is the teaching of facts and rules about citizenship so often ineffective?

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PART II

FAVORABLE WORKING CONDITIONS

CHAPTER IV

FACTORS OF ENVIRONMENT

Importance of environment in education. The relation of the physical factors of the school to problems of teaching will be more readily realized by remembering a principle stated at the beginning of the previous chapter, namely, that learning takes place only through the individual's reactions to the situations which confront him. The situation to which a pupil responds may have as its chief stimulating element the teacher and the activities, mental or physical, which are proposed. On the other hand, the situation may be predominantly one of physical environment, and the possible reactions of the pupil to such a stimulus may be appreciative admiration, resentment, annoyance, restlessness, faulty posture, harmful eye-adjustments, or a host of other responses of equal importance, favorable or unfavorable, to his later education.

The environment may influence educational results either directly or indirectly. In the first place the environment itself may be so chosen as to awaken directly the type of learning-activity desired. This may be the case in connection with field trips, industrial displays, art exhibits, or similar situations, and the regular buildings and equipment may be planned with this in view. The indirect influence is through helping or hindering the regular work of instruction, and such factors are frequently sufficient to turn the scale, in doubtful cases, toward failure or success. The first use of the environment makes it practically a part of the course of study, and does not belong directly in this discussion. The indirect effects, however, influence almost every act of learning, and their control must be pro-

vided for as part of any comprehensive [illegible]ue of teaching.

School environment and health. The time is happily past when physical conditions of the school are allowed to jeopardize the health of the children. While it can hardly be said that there has been entire acceptance of the idea that health and physical efficiency should be the first great objective in education, there is nevertheless much more general concern for the physical welfare of the pupils, and the desire to make the lighting, seating, ventilation, heating, and general hygienic conditions of the school as favorable to health conservation as possible. Apart from the permanently harmful effects that may follow neglect in this regard, causing irreparable injury to the individual and consequent loss to society, the immediate results in lowering the efficiency of learning activities in general should be of sufficient moment to merit prime consideration in connection with teaching. The features of the physical environment which are taken up in the following paragraphs are discussed mainly from the second or immediate viewpoint, but whenever a particular matter has greater bearing on the permanent efficiency of the individual than upon the immediate work, an attempt is made to give due emphasis to the fact.

1. *Lighting*

Constant attention needed. The task of keeping the lighting of a schoolroom properly adjusted would be a difficult one even if the amount and direction of sunlight were to remain constant. With pupils seated at varying distances from the windows, it is an exceptional room which does not constantly present the double problem of overlighted and underlighted portions. Assuming that the room meets the standard requirements of having window

space equivalent to at least one fifth of the floor space, the windows banked on the left of the pupils, and with shades adjustable from the bottom, there is still need of care to prevent annoying sidelights and even spots of direct sunlight upon the desks. Many schoolrooms are below standard in respect to lighting, and especially in the matter of proper shades to control light distribution. The problem is further complicated by the variation from sunny to cloudy days, and from morning to afternoon brightness in rooms with east or west lighting. As a consequence of all these factors, continual care must be exercised by the teacher who accepts due responsibility for providing every pupil with freedom from avoidable distractions and handicaps to normal vision and efficiency.

Its importance to teaching. Most of the readers of this chapter have themselves at some time suffered the annoyance of attempting to study with improper light, and will no doubt remember how trying it was, even if they were fortunate enough to escape permanent ill effects. To them a mere reminder should be sufficient to impress the importance of thoughtfulness in this regard. Emphasis seems justified, however, by the fact that systematic surveys show such frequent neglect of proper provisions and adjustments to secure satisfactory lighting.

Apart from the direct returns in better prepared schoolwork, sympathetic thoughtfulness in this matter improves working conditions in general. Nothing is so productive of discouragement, irritability, or even resentment as a discomfort from eye-strain. Correspondingly, a sincere solicitude and effort by the teacher to maintain comfortable working conditions wins an appreciative response from most pupils, and goes far in helping produce a good classroom spirit. The conditions of modern life have thrown a heavy burden upon the eyes, and comparatively few people

now reach middle life without some difficulty in their vision. In the work of preparing children to meet the exactions of the life that confronts them, conservation of vision and the elimination of avoidable nerve exhaustion should surely have primary consideration. Such consideration should extend to the type of work assigned, its appropriateness for immature pupils, and caution against unreasonable requirements for home or school study. Teachers should be familiar with the principles of hygiene evolved in this and similar responsibilities, and are advised to consult the references at the end of this chapter for more extended discussions than the scope of this book permits.

2. *Seating*

Adjustments needed. Another matter that receives insufficient attention in most schoolrooms is that of proper seating. School surveys show that in the majority of rooms studied, pupils varying twelve inches or more in height from the shortest to the tallest are occupying seats of the same size. The result is a stooping, cramped position for the tallest pupils, a stretching, foot-dangling position for the shortest ones, and discomfort or worse for both. Unless the pupil can place his feet firmly on the floor and rest his elbows comfortably on the desk while sitting erect, he does not have a fair opportunity to do creditable written work, and may form wrong habits of work and posture which will be permanent handicaps. References at the end of this chapter will furnish accurate data as to proper distances and adjustments of desks, but the rough test suggested in the preceding sentence will enable the teacher to locate at a glance the cases which need immediate attention.

Movable desk desirable. From the standpoint of results, it is of course desirable that the seats be so adjusted as to allow every pupil to work comfortably and effectively,

and be free from the strained position of an ill-fitting desk which places his work at wrong distances and angles, in addition to contributing to bodily fatigue. Proper adjustments mean a saving in nerves as well as an improvement in work.

In order to make possible the best teaching technique, desks should be movable as well as adjustable. A much fuller use of the socialized recitation, which will be described in a later chapter, is possible when the seats can be arranged for coöperative group work, or into a wide circle for general discussions or the presentation of special activities. The mere occasional rearrangement of seats into a more informal grouping will usually change the passive uniformity of attitude which goes with the formal seating plan, and make possible more vital activities and responses. The modern tendency away from the formal and sedentary type of classroom procedure toward more varied and constructive activities is likely to make the immovable school desks, set in pin-like rows, obsolete in the not distant future.

3. *Ventilation*

Fresh air and vigor. The alertness and energy of children in a schoolroom are dependent directly upon their supply of fresh air. As Terman has well said, "Air is food as truly as bread or meat." Scientific information in regard to the need for proper ventilation and the value of fresh air in the arrest and cure of many diseases is now so generally taught that practically every person who prepares for teaching is familiar with it. But the writer's experience of stepping into a stuffy, close-smelling room, where a class of pupils were lifelessly reciting a lesson on ventilation to a cross teacher, is not a unique example of the lack of harmony between knowledge and practice. The teacher intent upon the work of the hour is prone to forget

the gradual vitiation of the air, and to place a more personal interpretation upon the growing dullness in the responses of the pupils. To one entering from the fresh outer air the odor of many classrooms is so eloquent of needed ventilation as to be almost offensive.

Safeguards needed. The importance of good ventilation for vigorous, alert responses and successful teaching is so obvious that teachers need automatic reminders rather than lectures upon the subject. The wise teacher will adopt means of insuring against oversight in this connection. It is a good plan to have brief " fresh air " intervals at appropriate places in the program, so that habit and the expectation of the pupils themselves will serve as reminders. A still better device is to assign the responsibility for watching the ventilation to the pupils themselves as a practical phase of their hygiene education. By rotating this office among the pupils by twos the instruction is made more effective for them all, the teacher has a fairly reliable safeguard against neglected ventilation, and the schoolroom atmosphere is kept reasonably fresh and stimulating for the proper activities of the pupils.

4. *Materials and apparatus*

Their function in school work. The schoolroom should be a workshop. To this end there should be readily accessible the tools which are essential for the kind of work which the school expects. This means that books of reference, atlases, illustrative materials, and apparatus should be so arranged that their use occasions the least practicable disturbance of the pupil's train of investigation. It is unfortunate that many teachers make the use of such " helps to study " a matter of sufficient formality and procedure as to interrupt seriously the problem under study, or even to deter pupils from resorting freely to such facilities.

Use to be encouraged. Modern teaching is placing more and more emphasis upon developing ability to use effectively, reference books, magazines, and other first-hand sources of information applying to the point in hand. The advantages of such a practice will be enumerated in a later chapter, but many of them will be obvious to a thoughtful reader. The point to be emphasized here is the fact that teaching conditions are very much more favorable if all such materials are so arranged and located as to encourage the freest possible use by the pupils. A work table, around which a group may readily use reference matter, should be a part of the equipment of a real working-room. In order that the pupils may consider this their " shop," it is well to encourage them to bring auxiliary material of their own. The response is almost invariably an enthusiastic one, and regularly means improved facilities of a valuable sort. In one such room this pooling of reference material led to the establishment of a sort of circulating exchange of scientific, mechanical, and recreational magazines with the school as headquarters and clearing-house. The type of first-hand investigation which this fosters is the best possible preparation for independent participation in the responsibilities of modern society. The teacher who inaugurates and encourages such a use of classroom materials and equipment is following one of the very best plans for utilizing the physical features of the classroom to forward the work of instruction.

5. *Physical defects*

Giving each child a fair chance. There is a difference of opinion among school authorities as to how far the teacher should be permitted to test pupils for physical defects likely to interfere with school work. Since most of these tests require special training, they are the province of the school

nurse or physician, as is also the matter of recommending the treatment or curative measures to be taken. Where such services are not available, there are certain tests that may be given practically as class exercises, and that furnish valuable information as to which children suffer from such handicaps as defective vision or deafness. Suggestions as to how these tests may be made without embarrassing the suspected children are to be found in Terman's *The Hygiene of the School Child*, or similar books on school hygiene.

After these handicapped children have been discovered, either by the teacher or by a special examiner, there remains the question of what to do about it. Assuming that the parents have been tactfully advised, the immediate problem is one of dealing with the pupil in such a manner as to minimize the disadvantages caused by the misfortune, and to secure for him, as far as possible, a fair opportunity to derive, along with his group, the benefits of teaching. Such a course not only strives for equality of opportunity, but is a practical necessity if group teaching is to be effective.

Cautions to be observed. The child who is conscious of some physical handicap is very likely to be sensitive in regard to it, and to try to conceal it. Thus in the case of defective hearing, and to a lesser extent that of imperfect vision, the child will often allow himself to seem stupid rather than risk calling attention to his misfortune. Many a child is considered dull or stubborn for failing to respond satisfactorily when in reality he does not see or hear adequately the things which the rest of the pupils are comprehending. Consequently the teacher should use the greatest thoughtfulness in devising means of helping the child without making him conspicuous. The assignment of seats, care in position when given written or spoken directions, and other devices will occur to the considerate teacher

Above all there should be cultivated a sympathetic understanding with the child, so that he will not hesitate to discuss privately his difficulties and thus be in a position to receive needed assistance.

In even greater need of tactful treatment are pupils handicapped by stammering, or by extreme nervousness. In either case, there will be a natural but cruel and thoughtless tendency on the part of other pupils to tease the unfortunate one. The resultant shrinking of the child from participation in the group activities makes the problem especially difficult, because what he needs, more than anything else, is to make adequate social adjustments. The task of the teacher in this case becomes that of directing the child's environment in such a way as to lead him to find satisfaction in his social contacts with the group, and thus to lose the oppressive timidity and painful self-consciousness which induce panic and break down self-control. Such a child is usually oversensitive to his social environment and needs to have his balance and self-confidence strengthened, but not smothered by sympathy. In many cases it is wise for the teacher to plan relief periods for the child, in which his work will go on under an environment less stimulating socially. Intelligent leadership on the part of the teacher will usually succeed in establishing a helpful, considerate attitude on the part of the class, and under the influence of a sympathetic environment the child is helped to make the adjustments essential to effective work with his group.

Summary. Since learning takes place through the pupil's responses to the influences which surround and stimulate him, teaching must take into account the physical environment, its favorable or unfavorable effect upon the learning-activity desired, and the child's capacity to respond satisfactorily to his environment. The teacher's control of

the physical factors influencing the children's responses should attempt to eliminate distractions, as well as dangers to health. Features of more than usual importance in this regard are matters of correct lighting, proper seating, adequate ventilation, appropriate arrangements for use of reference and accessory helps to school work, and provisions for individual adjustments to compensate for physical handicaps which may interfere with desirable responses on the part of special pupils. The purpose throughout should be to secure for every pupil the opportunity to work under reasonably favorable conditions, and with a fair chance in comparison with the other pupils in his class. The work of assuring in this way an environment conducive to desirable results in learning is as truly a part of teaching as is the directing of a recitation.

OBSERVATION OF CLASSROOM CONDITIONS AND ACTIVITIES

At the close of this and the following chapters will be found outlines and questions for guiding observation. These have been developed and revised, as they were used by successive classes, in an effort to make more concrete the study of the various factors which influence successful learning and teaching. Each outline covers only a limited number of points, and is intended to lead the student, by gradual steps, to a systematic analysis of classroom problems as they are actually met, and to make immediate application of the principle discussed in each chapter. It is desirable, of course, to have classes of elementary or secondary grade available for observation, although any situation in which directed learning is taking place offers possibilities for studying conditions and procedure. The value of the theoretical study of teaching

problems depends to no little degree upon their being visualized as they actually arise in the classroom.

The outlines are planned with the expectation that the observer will write an interpretive report on each observation. Some of the outlines will consist mainly of questions calling attention to points which should be noticed. While these questions may often be answered by a simple word, the student will derive much more profit from the observation by giving, in each case, a brief justification of the answer or citing the occurrence upon which the judgment was based.

OUTLINE GUIDE FOR OBSERVING PHYSICAL CONDITIONS OF THE CLASSROOM

GENERAL PROBLEM: To what extent is the teacher making the most of the *resources* and *opportunities* for securing favorable environmental conditions for every pupil.

1. *Lighting.*
   - *a.* Rate conditions as *excellent, good, fair, or poor,* and state your reason.
   - *b.* Notice individual pupils, and estimate the per cent with satisfactory light for work.
   - *c.* Make note of adjustment of shades, arrangement of pupils, and other means employed by the teacher to secure favorable conditions.
2. *Seating.*
   - *a.* Rate conditions, as under lighting.
   - *b.* List cases, if any, where seating arrangement could have been improved by teacher.
   - *c.* Note means used by teacher for apparent purpose of providing satisfactory seating.
3. *Ventilation and heating.*
   - *a.* Apparent condition of air. (Rate as above.)
   - *b.* Means used for ventilation.
   - *c.* To what extent was teacher responsible for conditions?
   - *d.* Evidences of systematic plan for maintaining proper heat and fresh air.
   - *e.* Justify arrangements observed or suggest improvements

4. *Care and use of materials and supplies.*
   a. Rate as for other topics.
   b. Was the most *educative* use being made of materials? Justify your estimate.
5. *Neatness and general conditions.* (Give rating and reason.)
   a. Decorations.
   b. Condition of blackboards.
   c. Condition of floors.
   d. Condition of desks.

PROBLEMS AND EXERCISES

1. In what sense is the control of the children's environment really "teaching?" Give an example to illustrate your point.
2. Why does the lighting of a schoolroom always present a difficult problem for the teacher?
3. Outline a plan for checking up and correcting the seating adjustments in at least two rooms which you are able to visit.
4. What means of testing the sight and hearing of pupils are simple enough for practical use by the teacher of average training? (Help on this point may be secured from the references following these exercises.)
5. Select some typical classroom, study the arrangements for heating and ventilation, and suggest a plan for using pupil assistance in maintaining satisfactory conditions in this respect.
6. Prepare a list of rules in regard to the use of reference materials and similar equipment which you think would encourage the maximum use consistent with good order.
7. A teacher should always consult the school nurse, physician, or health authorities in regard to the more serious physical handicaps of pupils. Give examples of matters which you think the teacher should properly deal with directly, and others which you think should be reported to trained health inspectors for consultation.
8. Suggest various ways in which the parent might be informed in regard to physical handicaps of the child, and the type of parent with which each might be a satisfactory way of securing coöperation. Why does such a situation call for unusual tact?
9. If you were asked by your school board for advice in planning the arrangement and equipment of a new classroom, how would you proceed in order to make your assistance as effective as possible?

SELECTED REFERENCES

Ayers, Williams, and Wood. *Healthful Schools.* Extremely good treatment of heat, light, ventilation, and equipment.

Burton, W. H. *Supervision and the Improvement of Teaching*, chap. III. Brief, practical chapter.

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Sears, J. B. *Classroom Organization and Control*, chaps. II to X. Excellent and thorough treatment of the important principles involved.

Stark, W. E. *Every Teacher's Problem*, chap. X. Interesting presentation of problems regarding hygienic conditions.

Terman, L. M. *The Hygiene of the School Child.* Contains an abundance of practical suggestions.

CHAPTER V

ORGANIZATION AND CONTROL

The purpose of school organization. Whenever individuals are working in a group, whether upon the same or diverse tasks, there are endless occasions for confusion, misunderstandings, and waste of both time and energy. To prevent these interruptions of productive activity, managers of workshops, industrial plants, or outdoor crews build up, as soon as possible, a definite organization whereby each worker receives the benefit of the coöperative efforts of others, but is protected from unnecessary disturbance and annoyance. It is the purpose of school organization to accomplish similar results in the classroom. Consequently the first test of any plan of such organization will be in the extent to which it eliminates friction, prevents waste of time and energy, and provides a satisfactory opportunity for each pupil to pursue effectively his appropriate work.

Two types of activities involved. In planning the school organization there are two distinct kinds of activities for which provision must be made. One kind is in response to situations that recur over and over again through the whole term. In these cases, where the same circumstances are repeated so many times, it is wise and economical to select the best and most appropriate way of acting under those circumstances and learn that so well that it can be followed every time, and thus avoid continually hesitating and experimenting. For example, in a regularly recurring activity like leaving hats and wraps in the cloak-room, a little study will determine what seems the easiest and best order in which to have this done. Unless some such procedure is learned and regularly followed, time will be wasted daily

in the variations attempted, there will be constant temptations to disorder in the crowding and confusion, and there may ensue, as has actually happened, a fistic battle over a favorite peg in the cloak-room. This type of activity which is learned and followed whenever the appropriate situation recurs is known as routine. The scope, value, and limitations of this phase of organization will receive special discussion in later paragraphs of this chapter.

The second type of activity for which the organization should provide is the kind involving choice and judgment. The situation calling for action may be unlike any that has occurred before, or there may be only certain elements which are new. In any case, where the established routine is not sufficient to assure desirable responses in the emergency, decisions will have to be made by the children, either to follow some definite line of action, or to wait for directions from the teacher. Their decisions and consequent conduct may be quite at variance with the teacher's wishes, and the working conditions of the school thereby more or less completely upset. The character of their responses in such connections will be determined mainly by the principles of conduct which they have accepted, individually and as a group, by their attitude toward authority, by their loyalty to the school, and, in general, by those factors which make up morale.

In the first group of activities, the responses must, of course, become habitual, and the establishment of routine follows the laws of habit-building. In the second group, the responses take their character largely from the attitudes and feelings of the pupils, although knowledge also has an important part, since right conduct and effective coöperation need for guidance an intelligent understanding of reasons and consequences. In the following sections, the essential factors of each group are taken up and examined

in the light of their relation to working conditions, and of their contributions to the organization, control, and morale most favorable to successful teaching and learning.

1. *Factors of routine*

The function of routine. In the desire to make the school informal and to encourage freedom of activity, some have insisted that routine is unnecessary. The same persons, however, would be loud in their complaints if that feature were absent in car-schedules, shop-hours and service, the preparation of meals, lecture-hours, the keeping of appointments, and a host of other things upon which we rely in planning our affairs. Whether it be called routine or by some more popular term, like "system," the established uniformity of response to regularly recurring situations furnishes the basis for most of the stability and confidence in human relationships. It not only is necessary for harmonious and satisfactory group coöperation, but also is essential to any real freedom and development on the part of the individual, William James, in his *Principles of Psychology*,[1] (p. 122,) has expressed this truth most forcefully in the following language:

> We must make automatic and habitual, as early as possible, as many useful actions as we can . . . . The more of the details of our daily life we can hand over to the effortless custody of automatism, the more the higher powers of our mind will be set free for their proper work. There is no more miserable human being than the one in whom nothing is habitual but indecision, and for whom the lighting of every cigar, the drinking of every cup, the time of rising and going to bed every day, and the beginning of every bit of work, are subjects of express volitional deliberation. Full half the time of such a man goes to the deciding, or regretting, of matters which ought to be so ingrained in him as practically not to exist for his consciousness at all. If there be such daily duties not yet ingrained in any one of my readers, let him begin this hour to set the matter right.

[1] Henry Holt & Co., publishers.

In brief, the important psychological fact is that routine hands over to the lower nerve centers the task of carrying on the necessary mechanical activities, and leaves the higher centers free to engage in those more unusual, more interesting, and more worthy of the human intellect. So in the schoolroom, well-planned and well-established routine will save time and energy and make possible their investment in more profitable enterprises.

How much routine. It is well to remember that too much routine is as objectionable as too little. The latter invites confusion, delays, and disorder, but the former is deadening to initiative and expends time and energy on building routine for activities that would better be left to individual judgment, or else are not important enough to justify the investment. It should not be forgotten that the establishment of smooth-running routine calls for vigilant and patient effort on the part of the teacher, and much careful repetition on the part of the pupils. The cost of each added feature of routine increases in something like geometric ratio as it approaches the toleration point. Consequently, the need and value of each detail should be well considered before its inclusion.

In general, the proper amount of routine has been planned when the most frequent and necessary mechanical activities have been included, without entailing undue burden in learning or encroaching upon more important work. The *frequency* of *occurrence* of an activity, its *importance for saving time or preventing disorder* in the normal movements of the group, *its necessity for the protection* of the pupils, and its *permanent value as a habit*, are the most important factors to consider in determining whether a particular activity should be made an item of routine. In the following paragraphs, matters are discussed which experience has generally shown to be appropriate features for routine.

Signals. The most obvious example of indispensable routine is that of signals and the responses for which they are intended. From the morning bell which calls the pupils to the building to the final signal of dismissal, the meaning of every one should be clearly understood by the pupils and the responses automatic. The value, or even necessity, from a time-saving standpoint, of an effective system of signals for such things as fire drills, assembling, passing of pupils, dismissal, granting permission for leaving seat, and similar matters needs no argument. A word of warning is, however, in place. Many teachers fail to get immediate and uniform reactions from pupils because of a lack of clean-cut uniformity in giving signals, and insistence upon the same precision in response. If we are to utilize the psychology of habits, the manner of giving a signal, and the activity signified by it should both be linked in practice with the fullest uniformity and immediacy. Thoughtless teachers who, with the idea of introducing variety, alter occasionally the giving of signals or permit a letting-down in the response, are simply relinquishing most of the values for which routine is intended.

Entering and leaving the building. The chief objects to be kept in mind in planning how the children may enter and leave the room and building, most safely and most expeditiously, are the avoidance of confusion, of occasions for disorder, of loss of time, and the cultivation of appropriate conduct in group movements. The passing through the halls may often be without lines or formal restraint, yet in any case the children will be expected to be habitually orderly and considerate, which in itself means that the manner of passing has become routine. The dangers that may attend disorderly conduct on the stairs, as well as the moral let-down that attends and follows the unregulated surging of children through the halls and entrances, make

imperative some systematic plan for meeting the situation. In larger buildings such regulation will be directed by the principal, but every teacher, even under such circumstances, should see that her own room-routine fits in well with the plans for the building.

An important part of this proceeding is the handling of wraps. Unless every pupil is assigned a definite hook or peg upon which his wraps are methodically hung as he marches past, the cloak-room has amazing possibilities as a starting place for disorder. In cold and stormy weather the putting-on of wraps and rubbers may be so complicated as to require bringing them into the schoolroom before dismissal, but such an arrangement in itself consumes so much time that it should be avoided where possible.

Handling materials. A frequent cause of wasted time, distracted attention, and general disturbance is a lack of system in handling materials. The use of pupil-monitors, in accordance with carefully planned methods of collecting and distributing supplies and materials, will not only enable the teacher to use her time and energy for more important work, but will also lessen delays and confusion as well as give the pupils some valuable training in responsible, systematic service. In the lower grades where pencils, penholders, or similar supplies are collected and returned, some such device as a simple rack, or even a shoe box with holes punched in the lid to duplicate the seating arrangement of the room, will save the time of pupils in getting the "right" pencil, prevent arguments, and be more than justified from a hygienic standpoint. Plans in every case should be determined by the character of the materials to be handled and the age of the pupils, but the teacher who is alert to devise means for saving time and eliminating movements which take the attention of pupils from their work will be

able to discover many means of attaining these ends through improved routine.

Pupils' duties and privileges. To a large extent the duties and privileges of the pupils in the room may be standardized. Such matters are sometimes called "classroom manners," and include the keeping of the pupil's work place in standard order, permission to leave the desk or room, rising to recite, passing to blackboard, permission to speak, and similar things which recur frequently and certainly should come under standardized procedure, requiring at most a nod or signal, and not calling for discussion, deliberation, or other treatment to divert attention. If all this is planned to protect the group from unnecessary disturbance, and so impressed upon the pupils, it will inaugurate habits of permanent social value.

Fire drills. The value of a fire drill as a measure of safety depends of course upon the promptness and automatic correctness with which the children respond to a prearranged signal. Repeated practice until this is assured is necessary, and any less is criminal negligence. If the matter is properly presented to the children, they will cooperate in bringing this phase of routine to a high standard and will even take pride in giving it an almost military precision.

Inaugurating routine. The establishment of routine must follow the laws of habit-building. Briefly stated, these require that the pupils understand clearly the precise response which is expected, and then practice this accurately until it becomes automatic. This procedure naturally implies that the attention of the pupils has been gained fully enough to insure an accurate idea of the activity, and that their interest and coöperation have been sufficiently enlisted to secure careful, attentive repetition while it is being made habitual. Since the monotony of

the repetitions is uninteresting, the natural tendency of the children will be to vary the activity, either through carelessness and inattention or through purposely trying something different. Herein lies the critical stage of establishing routine. If exceptions are permitted, the whole purpose will be defeated, or regained only at increased cost in effort and time. The teacher who does not have the courage and persistence to carry through patiently, pleasantly, but firmly the routine as planned, is doomed to many vexations and multiplied difficulties in the working conditions of the room.

On the other hand, the teacher who quietly insists on having routine directions uniformly observed will quickly find a diminishing need of reminders, and will soon be repaid by the satisfaction of the pupils themselves in being free from vacillating requirements and in working under smooth-running conditions. A convincing proof of the pupils' preference for such a condition is experienced by the substitute teacher who unwittingly attempts to change a routine which the children have found satisfactory.

The first day of school. At no time during the school term are conditions so favorable for inaugurating routine as upon the opening day of school. The pupils are alert and attentive in their curiosity as to the requirements of the new teacher. There are no competing factors in the way of wrong habits already started. Pupils are not yet prepared for regular recitations, but the wise teacher will nevertheless keep them well employed, and can use an adequate amount of time to practice the needed mechanical activities. First impressions obtained by the pupils on the opening day of school will prove potent influences later, either favorable or unfavorable to a business-like organization and to working conditions. After school is dismissed on the first day, when the jury of pupils, in departing groups,

discuss the teacher, appraise the quality of the work that will evidently be required of them, and review the items of routine which have been explained and practiced, the verdict then rendered will not easily admit of revision.

Getting a good start. As was implied in the preceding paragraph, the first day of school should be one of the busiest and most business-like of the entire term. If conditions are to be established favorable to the best work on the part of the pupils, the activities of that day must be planned to win their respect for the teacher as a competent and resourceful leader, and for the routine requirements and organization as definite, reasonable, and consistent.

To accomplish this will require thoughtful preparation by the teacher before the opening day of school. Every detail that can be reasonably anticipated should be provided for. The register, program, and any other records left by the previous teacher should be studied, as well as the room itself with its possibilities in the way of seating, supplies, cloak-rooms, entrances, and equipment. Then at every normal development of the first day's activities the teacher will be ready with a definite procedure, with the result that the school organization may not only be immediately launched under the most advantageous circumstances, but a favorable impression be created among the pupils that will be an immense asset to the teacher.

An actual incident will illustrate how well such preparation pays. A young teacher, just out of normal school, was about to take charge of a rural school of thirty-six pupils. Her only advance sources of information were the register, listing the pupils by grades, and the well-meant warning of a school trustee that the school had been a difficult one for the past year, and that some of the larger boys might be troublesome. An examination of the register showed that the seventh grade would contain seven pupils, four of whom

were boys. As she noted their ages and their records of the previous year, she concluded that this group deserved a little preparatory study. She accordingly memorized their names, a task of only a few minutes. When the school assembled and she was assigning seats, she said, "The seventh grade will have this row. Paul may take this seat for the present. Where is Robert? Robert, you may sit here, Edith in the next seat, and George in the next one." As she went down the row with at least the appearance of calm assurance, the boys stared at each other in amazement at such evidence of omniscience. The mask of anonymity behind which hecklers like to hide had already been torn from their faces. The expected opportunity to "try out" the new teacher before she came to know them was gone. The presumption was that she knew many other things about them, and that their conduct should be regulated accordingly. This teacher had many perplexing problems to solve later in the term, but the distinct advantage gained by her readiness on the first day was sufficient to enable her to establish and maintain a successful organization. Moreover, the genuine respect which the pupils felt for such evident preparedness was the first step toward a wholesome, friendly relationship between teacher and pupils which later developed, and which is always essential to the best type of working conditions in the schoolroom.

First day should see all work well begun. It should not be understood from the foregoing that the first day of school should be given over entirely to inaugurating and practicing routine. After all, routine is only a means to an end, and that end is a busy school, effectively engaged upon profitable, interesting work. At least a temporary program should have been planned so that recitations in all essential subjects may be held, and some means used in each to discover the advancement of the pupils and determine the

point at which the new work should begin. Such recitations may well include informal tests which will reveal to pupils, as well as teacher, the obvious needs and shortcomings of the class. Above everything else, the opening day should convince the pupils that a term of very real work has actually begun, and that the good resolutions with which most pupils begin a new term have very definite activities upon which to fasten. To accomplish all this needs all the time available on that first day, and no greater misuse of the opportunity can be made than to dismiss the pupils early and let them carry away an impression that nothing of much importance has yet transpired. From the standpoints, both of favorable conditions for introducing necessary routine and of stimulating an immediate and vigorous attack upon school work, there is no time at which careful planning yields more profitable results than that preceding the opening day of school.

2. *Factors of judgment and morale*

Types of situations not appropriate for routine. In any attempt to maintain conditions most favorable to profitable school work provision must be made for pupil initiative, and opportunities provided for developing rational self-control. The responses of pupils to such opportunities vary with the individuality of each, and the line of action chosen may in many cases threaten the working conditions of the school. The control of such situations cannot properly be a matter of routine, partly because the occasion itself is more or less unusual, and partly because the individual factors involved should make the action taken depend upon careful judgment. Under such circumstances, the maintenance of an effective organization and control will depend upon the judgment and authority of the teacher, the principles of conduct established among the pupils, and the general morale of the school.

The teacher as director and leader. In the school, just as in any organized group working toward definite ends, there must be responsible direction and the authority to administer it. Whatever form of school government the teacher may choose to have established, it is well to remember that the final responsibility rests upon the teacher by virtue of position, and that the teacher owes a duty to the community and to the state to see that the purposes of the public school are attained. On the other hand, it is equally true in any organization that the best work is usually accomplished when this authority is not displayed unnecessarily, and the one in whom it is vested appears more as a leader, winning the voluntary coöperation of the group. It has become a generally accepted fact in modern industrial organizations that a friendly understanding between the executive and workers is indispensable to the best results, and that accordingly the best director is one who can secure such an attitude without sacrifice of authority. It is even more important that this relationship exist in the public schools of a democracy, and the time is fast approaching when the ability to win such a response from pupils will be generally demanded as a qualification for a position as a teacher.

Relationship of teacher and pupil. From the foregoing statements it naturally follows that the relationship between teacher and pupil should be a coöperative one, in which the pupil accepts the authority of the teacher to regulate the activities of the school for the general good, to decide and adjust points of difference, and to provide measures for furthering the legitimate work of the school. In return for this recognition of the teacher's authority and conformity to its reasonable requirements, the pupil has a right to expect a friendly, considerate attitude from the teacher, a sympathetic interest in his difficulties, a tactful courtesy

which spares him unnecessary humiliation in his shortcomings, and an appreciative recognition of his efforts as well as his accomplishments. A mutual, coöperative relationship of this character is the most important single factor in providing favorable working conditions and in making possible the most effective teaching.

Basis of wholesome relationship. The first and most vital step in establishing a wholesome relationship in the schoolroom is the courageous assumption by the teacher of the directive authority appropriate to the position. Just as in an assembly of adults there is a demand for a chairman who can firmly and decisively perform the duties of the office, and merit respect by allowing nothing to interfere with the proper business of the occasion, so the pupils give genuine approval only to the teacher who quietly but forcefully exercises the necessary authority to facilitate what they realize is the proper business of the school. More beginning teachers add to their own difficulties, and contribute unwittingly to unsettled conditions, by weakness in this respect than in any other way.

Building desirable morale. The efficiency of an organized group is largely dependent on the attitudes and emotional responses which make up morale. These consist of attitudes toward the established authority and administration, and also attitudes toward the group and toward the work to be done. For example, the morale of a military division is good when there is a willing acceptance of the commanding authority as just and efficient, a confident loyalty toward comrades-in-arms, and a resolute consecration to the duty before them. With such morale, soldiers accept the irksome requirements of discipline as necessary to the work in hand. Without it, the most elaborate military discipline can produce only an inferior organization. In the schoolroom, an autocratic type of

discipline is now entirely discredited, because its requirements are regarded as unreasonable and unnecessary by the pupils, and because it is practically impossible to build under it the morale requisite for the best work. It is not to be inferred from this that any surrender of authority is compatible with sound morale, but the necessary authority must be used in a way that clearly provides only needed control, without arbitrary curtailment of individual initiative and opportunity.

The task of building up desirable morale becomes then, in the first place, a matter of convincing the pupils that the authority and the control exercised by the teacher are necessary, just, and for the general good. This cannot, of course, be done by argument or lecture. The conviction must come as a result of their contacts and experiences. The personality of the teacher will naturally be a strong influence in this connection, but there are certain important factors that are not necessarily items of personality so much as of the manner of control and direction. These can be cultivated by any earnest teacher, and are all but indispensable to the development of desirable attitudes on the part of the pupils toward the teacher and toward the work of the school. A few of these important factors will be briefly described.

(*a*) **Consideration and courtesy.** A firm, authoritative control becomes doubly effective if it is administered in a way which secures compliance without unnecessary unpleasantness. Deliberately inflicted ridicule, and conspicuous "bawling out" of pupils are keenly resented, not only by the victims but by many of the other pupils as well, who feel an instinctive contempt for the teacher who takes advantage of authority to indulge in the refined type of brutality whose weapons range from withering, sarcastic words to physical humiliation. The teacher, on the other

hand, who just as uncompromisingly condemns the wrong act, but nevertheless realizes that its correction and prevention will need strengthened self-respect on the part of the offender, rather than its loss, will find effective means of maintaining order without such a sacrifice. Children have more sensitive feelings than adults often realize, and give their full coöperation only to those of whose kindly interest they are sufficiently sure to dread no unnecessarily inflicted pain. It is only in this atmosphere of confidence that wholesome morale can develop.

(*b*) **Justice.** Children are quick to note and resent what seems to them as unfairness. They expect the teacher to be consistent and impersonal in administering the government of the school. On that account, one must be on guard against loss of temper, or any behavior that might be interpreted as a personal issue between teacher and pupil. In discussing and correcting any wrong conduct, the attitude should be constantly kept that the offence has been against the group as a whole, and that the teacher's duty is to find just and effective means of protecting the rights of the group. This not only counteracts the tendency of children to interpret correction as a personal retaliation, but raises the standards of justice for the whole school to a basis most favorable to proper morale. Incidentally, this impersonal attitude will be a safeguard to the teacher against the very human tendency to become unduly irritated by a trying pupil and thus imprudently to give occasion for being judged unfavorably by the pupils. A fundamental requirement for a satisfactory school spirit is a general confidence in the justice of the teacher. Any one who has known the bitter, lingering resentment provoked by being unjustly judged by one in authority will agree that a teacher can hardly be too careful in the effort to merit always this confidence.

(*c*) **Sympathy.** The essential element of true sympathy is sharing another's viewpoint. In no other way can we feel, as he feels, the meanings of his joys, sorrows, discouragements, and achievements. The child, as he struggles with difficulties or triumphs in his efforts, hopes for a sign of appreciation from his teacher, and his working spirit for the future is influenced for better or worse thereby. The child who failed to live up to good intentions, the one whose misconduct was not wholly his own fault, and the one who blundered thoughtlessly into apparent disregard of established order may all be strengthened and made loyal allies by the teacher who "understands." Such pupils are almost always willing to make generous amends, provided thay feel that their motives have been understood and appreciated. Such cases include, sooner or later, the majority of the pupils in a class-group. One of the most characteristic signs of a group in which there is a notably high morale is the quick, almost unconscious, glance of the pupil attempting an unusually difficult task, or completing successfully a hard undertaking, toward the teacher to be assured of the ready sympathy expected. The word, sympathy, is not one frequently used by the average school boy, but there is no mistaking his meaning when he tells you how much it means to him and to the whole class to have a teacher who "always understands." And do not forget that this sometimes means laughing with them over a comic situation!

(*d*) **Cheerfulness.** The normal child is optimistic — almost recklessly so. Sometimes his elders complain that he doesn't take things seriously enough. He is really serious, but refuses to be solemn. To him, there are so many interesting, pleasant things waiting to be done that he declines to work energetically or even submissively in an atmosphere of solemnity and repression. The teacher who

takes himself or herself too seriously, and interprets the bubbling spirits of children as disregard of authority is not only fighting imaginary foes, but may be calling forth real difficulties to fight, in the shape of retaliations from an unsympathetic school. Children work whole-heartedly only where a spirit of genial, cheerful, good-humor prevails. Unless the teacher can show and maintain such a spirit, morale is lowered, and the way is opened for questionable levity and petty annoyances. More than one teacher has discovered that maintaining the requisite cheerfulness to key properly the working spirit of the room has not only raised the class morale, but has reacted most favorably upon her own spirits and disposition.

(*e*) Scholarship. The most obvious and definite work of the school is the mastery of facts, principles, processes, and similar materials of the curriculum. The pupils naturally estimate the success of the school in terms of progress in such mastery. Consequently, to them, the unpardonable fault in a teacher is a lack of adequate mastery of the materials with which they are working. Without complete respect for the scholarship of the teacher the working spirit of the school becomes half-hearted and indifferent. They do not care to toil ahead under questionable leadership. This does not mean that an occasional shortcoming is fatal. But it does mean that these must not be too serious or too frequent, and that the teacher must supplement a well-grounded grasp of essential principles with sufficient daily preparation to assure a confident mastery of the more important details. A lack of knowledge on an unexpected point should be frankly confessed in a spirit of true scholarship. Bluffing or evasion will almost certainly be suspected, and the consequent loss of the pupils' confidence is irreparable. A teacher who works conscientiously with a sincere desire to know and to teach accurately is not

likely to fail in this regard. The spirit of such a teacher furnishes an admirable inspiration and leadership in directing the group morale toward its proper goal, and in setting permanently sound standards for the general working conditions of the classroom.

Infractions of established order. The foregoing sections have been devoted to the constructive factors which make for effective organization and morale in the schoolroom. When these conditions are met, the probabilities of friction and disorder are reduced to a practical minimum. Children, though, are human, and there will be occasional lapses which will need special treatment. Such cases should receive very careful study by the teacher, as it is far more important to discover and correct the cause of the infraction than it is merely to "get order." The misconduct upsets working conditions and must, of course, receive immediate attention and regulation to the extent that work may again proceed, but this same misconduct has value for the thoughtful teacher as a symptom, suggesting needed adjustments on the part of the offenders in their attitudes toward their work, toward authority, toward the group, or toward the teacher. Any one who believes that citizenship and moral efficiency are important objectives in education, must realize that effective teaching along those lines will have to be adapted to the needs of the pupils, as revealed through their deficiencies in behavior. A teacher whose pupils have made certain errors in a test in arithmetic will hardly be satisfied with insisting that the correct answers be substituted so that the paper may look as it should. Instead, the teacher will eagerly examine the errors in the hope of discovering wherein the teaching has been ineffective, or what other causes underlie the shortcomings. The same attitude needs to be more generally developed with regard to the errors of pupils in conduct

Any extended discussion of the means by which needed phases of social responsibility may be developed among pupils must be deferred to a later chapter. The conception of this responsibility is, however, set forth here, because any corrective measures which are taken to restore order should be in harmony with the ultimate aims of moral and civic training. As a matter of fact, punishment, when it becomes necessary to restore and safeguard schoolroom order, is properly one means to be utilized in such training.

The functions of punishments. In the light of its relation to training in moral social conduct, punishment has two functions. The first is immediate and involves the restoration of order, along with such necessary readjustments in individual behavior as will permit the speedy reestablishment of satisfactory working conditions. The other looks to the future and to the permanent effects of the child's reaction to the punishment. In this latter function, the punishment must be so chosen and administered as to leave the child more kindly disposed toward authority and more capable of self-direction in moral social conduct. It hardly needs to be said that the experience should leave the pupil with strengthened self-respect and a desire to maintain it. All this may be put a little more succinctly by saying that there are two tests which punishment should meet: first, that of restoring order and working conditions; and second, that of producing a more friendly attitude toward the teacher and the school government, along with improved power of self-governed conduct.

The foregoing means, first of all, that effective punishment must put an end, immediately and permanently, to the objectionable conduct which occasioned it, but this result alone is not sufficient to merit approval. Too often such an end is attained at the price of resentful and secretly

rebellious attitudes among the pupils — attitudes which are subversive of permanent good citizenship or willing compliance with established authority. The studies which have been made in Reform Schools as to causes and first steps in delinquency furnish startling evidence as to the results of such bungling in school discipline. In fact there is no more severe test of real teaching ability than in the delicate matter of administering punishment so as to make it serve the best educational ends.

The administration of punishment. Many of the difficulties and mistakes which occur in this connection are due to the fact that what is punishment for one pupil is not punishment for another, and what is punishment for a certain pupil at one time is not punishment for the same pupil at a different time. In other words, the most essential element in punishment is the recipient's state of mind, which does not necessarily correspond to the physical discomfort suffered. Boys in their sports, and girls in their elaborations of the prevailing styles, endure willingly, or even with mental elation, more severe or prolonged physical discomfort than that involved in any modern school punishment. Whenever a pupil is able in any way to pose as a martyr, or to assume any distinction from the frequency or character of punishments received, the effect is worse, if possible, than the rebellious and resentful attitude previously discussed.

Although the foregoing restrictions may seem to make the proper imposition of punishment almost impossible, a real teacher-leader does not usually find the task extremely difficult. He knows that such considerations as "making it hot for the offender," vindicating the teacher's authority, or relieving the teacher's feelings are all of secondary importance to bringing about a change in the wrong-doer's attitude toward the rights of the group and

established order which he has violated. Until the offender has admitted the error of his behavior and recognized his duty to atone for it, all so-called "making amends" is a forced and insincere proceeding. The first step, then, is one of teaching, of leading the pupil to examine his offence from the standpoint of the school as a group and to see how it violates the rights of others or interferes with the proper work of the school. When a pupil has admitted this, he must acknowledge also that he has, by his offence, forfeited his privileges as a member of the school until he rights the wrong and furnishes acceptable guarantees against its repetition. This method of approach sometimes requires patient, earnest effort, but it is the only way to get at the bottom of the difficulty and to correct or prevent a wrong attitude. Most cases of misconduct arise from a spirit of mischief or from thoughtlessness, and these respond readily to a treatment which stimulates a more social viewpoint.

The selection and details of a penalty, after the preparation outlined above, may well be a matter for further study by the pupil himself. C. E. Rugh, in his admirable essay, *Moral Training in the Public Schools*,[1] insists that the offender must face his own misdeed and find means of restoring himself to good standing, and adds, "It must be repeated that the wrongdoer must do the work. The teacher stands ready to help, but the child must be left alone to work out his salvation unless he asks for help."

The remaining question now is, What penalty will atone for the wrong done, and at the same time be an effective deterrent against further infractions? The pupil who has agreed that his behavior merits such a penalty will derive double benefit from one which he has helped to select and which he has promised will be effective. In this way,

[1] Ginn & Co., publishers.

punishment becomes practically self-administering. It is no longer a battle of wits and endurance, with pupil arrayed against teacher in a contest which adds a sporting zest to misconduct. Our best juvenile court judges have demonstrated the efficacy of this method, even with boys whom the schools have given up as incorrigible. To be made a partner in his own reformation holds a powerful appeal to a boy's instinctive sense of honor and group loyalty, and tends to develop the quality of responsibility, good will and self-direction upon which good citizenship rests.

Self-government. In the preceding paragraphs there has been suggested a very real kind of self-government, one in which each pupil undertakes to direct and correct his own behavior according to the best interests of his group. It is doubtful if any plan for allowing pupils to govern each other to any very general extent is worth the effort required to keep it in satisfactory operation. Immature children are hardly able to keep personal considerations from influencing their judgments and are incapable of the constructive teaching which should be a part of such control. Since the leadership in so-called pupil government must be supplied, directly or indirectly, by the teacher whom the community holds legally responsible for school control, it is usually better to retain frankly that control, rather than to carry on the difficult and precarious fiction of pupil government. The latter form has, however, a legitimate use as an occasional demonstration and recognition of high morale, and the stimulation of the special event, combined with wise direction, can make it a valuable expedient for impressing certain phases of citizenship. As a regular thing, though, the pupils can get their experience in the responsibilities and problems of group control most satisfactorily through school clubs, group projects, and similar subordinate activities, where mis-

takes or even failure may imperil the undertaking involved without seriously affecting the general school organization.

Summary. The purpose of all schoolroom organization and control is to provide favorable working conditions. Measures of this character fall into two classes — factors of routine, and factors of judgment and morale. The function of routine is to make automatic those activities which it is desirable to have performed regularly in the same way. Well-planned routine saves time and energy, and eliminates occasions for confusion and disorder. Establishing routine requires care and persistence, so careful thought should be given to the selection of activities, the nature and importance of which are such as to repay the effort necessary to make them effective routine. These may properly include such matters as signals, lines and passing, handling materials, classroom regulations, and fire drills. The best time for inaugurating routine is the opening day of school, when it should have an important part in the business-like activities that should characterize that day.

Many matters cannot or should not be made mechanical, and the proper direction of these requires the development of intelligent judgment and a wholesome spirit among the group. In the cultivation of a sound morale, the most essential element is a friendly, coöperative relationship between the teacher as leader and the pupils as loyal co-workers. The characteristics in the teacher's manner most favorable to this relationship are consideration and courtesy, justice, sympathy, cheerfulness, and trustworthy scholarship.

Whenever violations of the accepted standards of conduct occur, the administration of corrective measures should be such as to harmonize with the relationship suggested above. Punishment, when it becomes necessary.

should serve two ends; first, it should effectively terminate the objectionable conduct and restore at once satisfactory working conditions; and second, it should promote permanent good citizenship by strengthening the appropriate attitudes and relationships. Both these ends are attainable if the administration of punishment is characterized by real teaching, so that the pupil is guided in making, through his own activity, proper amends for his misdeeds and furnishing convincing assurances for the future.

Such coöperation by pupils in their own reformation is a very practical form of true self-government, is in accord with the constructive teaching of moral social conduct, and promotes effectively a wholesome spirit and a morale invaluable as a factor in maintaining the most favorable working conditions.

OBSERVATION GUIDE FOR ORGANIZATION AND CONTROL

General Problem: Are the factors of organization, routine, order, discipline, and morale favorable both to present working conditions and to permanently good citizenship?

A. *Routine factors.*
   1. List the items of routine apparent. (Underline those especially effective.)
   2. From the standpoint of genuine saving of time and energy, indicate wherein there is either too little or too much routine.
   3. Is routine well established? Note any evidences that teacher must still give reminders.

B. *Order and morale.*
   1. Standards of conduct.
      a. How reasonable and adequate?
      b. Note evidences of extent to which these are either accepted or evaded by pupils.
   2. Attitude of teacher toward pupils. (Select terms below which best apply, and give evidence as observed.)
      a. Sympathetic and courteous.
      b. Observant.
      c. Critical.
      d. Indifferent or irritable.

3. Attitude secured from pupils. (Illustrate as for topic above.)
   a. Coöperative and respectful.
   b. Tolerant and indifferent
   c. Disrespectful and annoying.
4. Maintaining order.
   a. How was disorder checked or prevented?
   b. Efficiency of discipline. (Give judgment both on immediate and permanent effects.)

PROBLEMS AND EXERCISES

1. Show how the broader social objectives of education have made classroom organization a larger problem than mere "discipline."
2. Choose some business or industrial activity, and show how routine is necessary to the convenience, safety, and efficiency of those participating. Does it require more or less routine than is necessary for a busy classroom?
3. It has been said that the first day of school is the most important day of the year. Do you agree with this statement? Explain why.
4. When you were a pupil you probably came in contact with one or more teachers who seemed to overemphasize routine. Explain how this made conditions less favorable for work.
5. The traditional test of perfect discipline was the ability to "hear a pin drop." Discuss the appropriateness of this standard from the standpoint of; (*a*) the aims of education; (*b*) the function of the teacher; (*c*) the resulting attitudes of the pupils.
6. A group of eighth-grade pupils in a training school was asked to think of the best teacher they had ever had, and to write a list of the qualities which made her their first choice. The qualities most often mentioned were "Was always fair," "Made us do good work," and "Laughed when we laughed." What do these suggest as to a proper relationship between teacher and pupils? Do these accord with your own judgment?
7. Add at least three more traits to the five listed as favorable to building desirable morale. Give reasons for your selection.
8. To what extent are "nature's punishments," such as bruises and stomachaches, educative? Should school punishments be more educative than these? Why?
9. Pupils are sometimes entrusted with self-government under the form of a "school city." Point out the essential features in which school government and city government may be alike. In what respects are they fundamentally different?
10. Enumerate the different valuable results which may be achieved by inducing an offending pupil to coöperate sincerely in the selection of his own punishment.

11. If you, as a teacher, were convinced that a certain pupil was trying to annoy you, explain what course you would take to remedy the matter. In justifying your procedure, try to give as fair a characterization as possible of the pupil, remembering your own school-days.

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PART III

GENERAL PRINCIPLES OF LEARNING

CHAPTER VI

THE PRINCIPLE OF SELF-ACTIVITY

The relation of teaching and learning. There has probably never been a better definition of teaching than that given a century ago by Jacetot, "To teach is to cause to learn." Other statements have had a more impressive and learned sound, but none has so simply and directly placed the center of attention and emphasis where it rightly belongs — in the response and activity of the learner. Whenever teaching has become formal and lifeless it has usually been due to a methodology that laid undue stress upon activities of the teacher. A pronounced characteristic of our best modern schools is the tendency to give decreasing attention to prescribed forms of activity for the teacher, and to focus it upon those of the pupil. This viewpoint logically bases all principles of teaching upon the laws of learning, and measures the quality of teaching by the extent to which it calls forth vigorous and effective learning-activity on the part of the pupil.

The cause of much poor teaching. Most teachers will agree, theoretically at least, that the work of learning must be performed by the pupil. In practice, though, too many of them hurry their bewildered pupils along toward the goals they have set up, deluding themselves into the belief that the children, whom they cleverly cross-examine into reciting things as the teacher wishes them said, really comprehend what they have been led to say. Of such teachers Burton, in his *Supervision and the Improvement of Teaching*[1] (p. 65), says:

> Many a hard-working teacher is puzzled and sometimes hurt by the lack of interest in the class and by the evident lack of pro-

[1] D. Appleton & Co., publishers.

gress, not realizing that by doing all the work herself she gives them no chance to progress.

The causes of this misdirected activity by the teacher are not hard to discover. Her plan for the recitation has noted the most direct steps by which the subject-matter of the recitation may be covered. In the first place these steps are probably those of her own adult mind, and may not be detailed or deliberate enough for immature pupils. In the second place, the pressure for time — a well-nigh universal classroom condition — tempts her to supply a fact here, or a demonstration there, which seems to save time and speeds up the apparent progress of the class, whereas it may really be depriving the children of the full activity necessary to the mastery of the work. The more quickly the teacher's own mind works the greater the danger that the pupils will be swept along without maintaining a sure footing, and so be constrained to seize upon surface phrases and sentences which they offer to the teacher to add to her delusion regarding their real knowledge.

Self-activity the most fundamental law of learning. The famous dictum of Pestalozzi, that *all learning comes through self-activity*, gave expression to a principle that has had a predominant influence in the development of modern schoolroom practices. Experiments and investigation, directed toward the improvement of teaching, have consistently demonstrated that the pathway of progress lies through a better understanding of the learner's normal activities in adjusting himself to new situations, and through more appropriate ways of stimulating and directing those same activities. As a guide to this improvement, the careful studies in the field of educational psychology have been most fruitful. In seeking out the special applications of the basic principle that learning is the process of

reacting to the stimulus of a situation, psychologists have made illuminating studies of the particular responses through which various types of learning take place. As previously stated, valid principles of teaching and a sound technique in their use must be based upon these investigations as to the nature of learning activities, and the most effective means of promoting and guiding them toward desired ends.

This fundamental principle of learning through self-activity is likely to remain an unapplied generality in the mind of the teacher unless it is seen as an essential characteristic of every concrete learning situation. Common observation so frequently finds teacher-activity assuming undue proportions that one must conclude that many teachers fail to make the principle their own by giving it adequate application. With this need in mind there are given, in the succeeding paragraphs, some typical teaching situations in which this principle is often overlooked. The discussion is intended to accomplish two ends. First, an attempt will be made to help the students see why so much earnest teaching accomplishes such meager and unsatisfactory results. Second, it is hoped that the student will get a much more practical and comprehensive understanding of the principle itself through visualizing an actual classroom situation, and tracing its operation through specific responses.

"Listening" and learning. One of the simplest and commonest forms of teaching is through telling. The material concerned may range from a simple admonition, such as "Keep to the right," to an extended lecture. The popular idea is that the pupil has only to listen and thereby learn. As a matter of fact the learning of even the simple direction given above involves some fairly complicated self-activity. Every word must not only awaken a re-

sponse in the form of an idea, but must also induce the recall of experiences which have given reality and meaning to the word-idea bond. For example, the writer once saw a group of primary pupils being instructed by their teacher prior to marching down the corridor. A bright little fellow at the head of the line was evidently taking his position seriously, and was determined to master the instructions which he was to carry out. As the teacher said, "Keep to the right," a puzzled look for an instant came over his face. Then he raised his arm as if he were throwing a ball, planted his foot firmly on the side corresponding to that motion, and showed by his expression that he was prepared to carry out the instruction given. If the student will try to reproduce in imagination the chain of experiences and associations which were recalled by this lad as he went through the mental activity necessary to "learning" the simple instruction given, the result will probably not only be a better understanding of the necessary self-activity, but also a readier sympathy for the child who looks puzzled over what seems to the teacher a perfectly simple statement.

This process in an even more complicated form must go on continually as one listens to a lecture, if any real learning and comprehension are to take place. Just as the child will either misunderstand or miss altogether even the simplest instruction, unless he mobilizes the past experiences necessary to a correct interpretation of the words, so the listener at a lecturer must be constantly weaving together, out of a more or less adequate store of experiences, new relations and new interpretations which constitute the meaning which he gives the words. If the lecture is presented in an interesting manner, the response of the hearer may involve such strenuous mental activity as to leave him with a distinct sense of fatigue.

Faults of lecturing. The activity of the hearer may, of

course, result in quite erroneous conclusions as to the intended meaning of the speaker. The language may be such that the listener can construct for it no satisfactory interpretation. Even familiar words may happen to suggest experiences and associations entirely out of harmony with the speaker's purpose. An unfortunately chosen word may start the hearers upon lines of false inference, or may cause them to laugh when a serious impression was intended.

In far too many cases, though, the lecturer stimulates almost no profitable activity whatever. Such lecturers, intent on relieving themselves of erudition, apparently take no thought, in their choice of words or in their explanations, of the probable background of experiences and information already possessed by their hearers. Such lecturing, measured by the amount of responsive activity and consequent learning stimulated, does not deserve to be rated as teaching in any worthy sense of the term.

Care needed with children. The incorrect or inadequate responses frequently given by adults, as noted above, are much more likely to occur in the case of children. The words used by the teacher may seem simple and plain, but as Beecher once said, "words are merely pegs upon which to hang ideas," and the child's equipment in that respect is still meager. A single word may have for the adult two or three possible meanings. With his abundant associations the situation suggests the correct meaning, an idea based on numerous experiences, but for the child that particular word has had only one meaning, and that perhaps drawn from one-sided or distorted experiences. His normal response, accordingly, is along lines wholly at variance with the teacher's thought.

To prevent this, as far as possible, the teacher should constantly be on the alert for signs as to the direction which the children's mental responses are taking. By

having pupils illustrate the things described, by encouraging discussion, by calling for applications, and by studying the changing facial expressions, the alert teacher will be able to conjecture their inner responses to the spoken words. At the same time a graphic illustration may be supplied, a suggestion offered, or other supplementary means employed to direct the mental activity of the pupils back into the right paths when the signs indicate that such assistance is needed.

The use of object lessons. The unreliability of words as a means of securing satisfactory learning-activity led to the use of object lessons and concrete illustrative material. These have extremely valuable possibilities as furnishing the opportunity for direct experiences, the material with which self-activity works. Dr. Earhart, in her *Types of Teaching*, has said, "Education should extend and remake experience." The use of objective material serves to "extend experience," and may thereby furnish a trustworthy basis for mental activity that would otherwise be distorted or incomplete.

It should be borne in mind, however, that the mere presence of objective material does not necessarily ensure profitable self-activity. Like the teacher whom Thorndike mentions as having "demonstrated" a volcano by a piece of sand-covered cotton saturated with alcohol, and a geyser by a concealed, water-filled rubber bulb, many instructors confidently assume that they are "giving" the pupils "correct ideas" by such objective performances. Such a teacher fails to realize that the ideas gained by the pupils will depend entirely upon their own activity and responses to the thing observed. This activity may be following the path which the teacher intended, or it may be concerned, as in the case just noted, entirely with the thrilling "fireworks" and the "squirt."

Object lessons often futile. Whenever the material of an object lesson has spectacular or distracting features, or when the presentation is not carefully planned and directed, the real purpose of the lesson is in danger of being defeated.

In a certain Western city a teacher of a fourth-grade room discovered that the junction point of two small creeks in the city park had valuable possibilities for studying the effects of water action upon land forms. Accordingly she arranged a "geography excursion" for her room, with the children carefully prepared in advance, so that they were on the alert to discover and identify the various geographic types which might be seen. The results were so highly satisfactory in the way of clear ideas and keen interest that the superintendent recommended that all the fourth-grade classes in the city take the same trip. According to his own account, when he visited their rooms later to see if all had derived equal benefit, he found that the impressions retained by the pupils in nearly half of the classes "were concerned chiefly with wet feet, an ice-cream cart, reproofs for disorder, and stone-throwing contests."

During the Panama Pacific Exposition, in 1915, the Board of Education of the City of San Francisco deemed the opportunity afforded the school children so unusual as to justify having each teacher take her pupils for at least one day's visit to the Exposition. The difficulties of keeping a group reasonably well-herded were perplexing, especially to those teachers who had never succeeded in securing the coöperation of their pupils in matters of conduct, but some of these were resourceful enough to devise a safe plan for meeting the situation. Two of them would take their pupils together. Upon arriving at the grounds, the children were lined up in double file for marching, with one teacher in front as guide, and the other at the rear to

prevent straggling and to maintain the lines intact. Then, by keeping the lines moving, the job wasn't impossible, after all. The writer has vivid recollections of the picture presented by more than one such procession being "shown" the Exposition — the teachers grimly intent on doing their duty and getting their charges safely back to the starting point, some of the children casting vain sidelong glances at the attractive exhibits which they were passing, and others sullenly trudging along, apparently limiting their mental activity to some private reflections as to the sense of the whole performance.

The foregoing examples of real occurrences are offered here to show the opposite extremes into which a so-called object lesson may degenerate. The aimless, unorganized excursion, and the over-formalized procession were alike only in that no adequate consideration was given to plans for securing profitable pupil-activity and making the experiences of the pupils function as a fruitful basis for later learning. When objective material is brought into the classroom, such as samples of industrial products, plants, or pet animals, either type of useless performance may result if no wiser provisions are made for utilizing the precious opportunity to elicit desirable forms of pupil-activity.

Influencing attitudes and appreciations. There is probably no field of education in which the necessity for proper self-activity is so much in need of emphasis as in the development of attitudes and appreciations. For example, the child's attitude toward truthfulness is the result of his reactions to circumstances in which truthfulness has been involved. Out of his own experiences in this regard, and the satisfactions or dissatisfactions which have attended his own activities, has developed his working standard of veracity. Into these there may have entered, to a large degree, the admonitions of others regarding truth-

fulness as a virtue, but if the latter were the chief factor in the process, many children, blessed as they frequently are by a wealth of admonitions in this regard, should show more pronounced improvement than is actually discernible. Similarly the child fashions through his own inner activity his standards of appreciation in music or literature. The teacher may be uncompromising in the condemnation of certain types of reading matter and in the approval of others. A vigorous teacher may even succeed in inducing the pupil to say that he likes the selections which the former has approved. But nevertheless it is the pupil's own activity, his inner responses of enjoyment or dislike, which will determine the actual standards according to which his voluntary reading will be chosen.

The reasons for the frequent discrepancies between the teacher's aims and the pupil's responses will be examined in a later section (Chapter X), when the precise character of this type of learning-response will be studied as a basis for a correct teaching technique. Space need only be given here, therefore, to a general emphasis of the fact that the learner's own activity is the moulding influence which determines the nature of his attitudes. Earnest work on behalf of some cause often converts a half-hearted helper into a loyal enthusiast. In the same way, the attitudes and tastes of the pupils, if influenced at all by the lessons presented, are changed for the better or worse by the pupils' own mental activities during the study and recitation. Poor teaching may have either of two unfortunate results. It may permit the pupil inwardly to pursue his own reflections, and thus be barren of any significant change, or it may excite in the pupil a feeling of distaste and aversion. Good teaching is such because it stimulates in the pupils the emotional responses which result in more worthy attitudes and finer appreciations.

Other types of teaching and learning. The necessity for self-activity in forming habits, acquiring skills, solving problems, or learning how to study seems so obvious as to require no extended argument. Every practical person knows that we learn to do things by trial and practice. A pupil can neither catch nor inherit the skill of others. He may, of course, be fortunate enough to have an excellent example of skill before him by which to guide and improve his own efforts. He may also have been fortunate enough to inherit gifts of capacity which make certain lines of effort especially fruitful in showing marked progress to reward his practice. Such advantages are useless, however, without the proper activity to utilize them.

In the more complicated learning processes, such as problem-solving, and learning how to study, the self-activity of the pupils may be saved from wasteful blunders and may be guided profitably in the choice of methods and lines of attack, but care should be taken not to lose sight of the real basis of learning. On account of the fact that pupil-activity is sometimes slow in achieving results, the impatient teacher is inclined to supply a formula or suggest conclusions so as to get subject matter "covered" more rapidly, but a glimpse under the "cover" at examination time is likely to reveal the futility of such helps. The development of real power must be gradual, and must be built up by the pupil's own efforts, but, as Parker pointed out in his *General Methods of Teaching* (p. 163), this process takes time. He says:[1]

A skilled teacher may stand quietly before the class for fifteen seconds while the pupils think. This may occur many times during a half-hour lesson in history or geography in the middle grades. The nervous, unskilled teacher, however, fails to realize the mental

[1] Ginn & Co., publishers.

activity that the pupils need to carry on; she is anxious to secure the objective results, to get the answer. Hence, she is continually pushing, nagging, suggesting, asking ten questions where one would suffice.

The goal of all teaching technique. The examples and applications which have been introduced to show the relation of self-activity to all forms of learning are intended to emphasize the essential basis of every phase of teaching technique. As we take up the various types of lessons and analyze the procedures most appropriate to each, we shall find that the most fundamental problem in every case is that of securing the kind of pupil-activity upon which depends the particular result desired. The remainder of the book is, then, in a sense, an elaboration of points introduced or implied in this chapter. Such unity and consistency as may be found throughout the remaining discussions will be due to the constant attempt to show that the goal of all teaching technique is the stimulation and effective guidance of whole-hearted pupil-activity.

Summary. The success of teaching must be judged in the light of the progress of the learner. Poor teaching is often due to a failure to appreciate the most fundamental principle in learning, that of self-activity, and the consequent exaggeration of the teacher's part in the process. In even so simple a matter as listening to directions the learning-response of the pupil is the vital element, and the teacher-activity in giving instruction is of secondary importance in the sense that it must be justified through the learning-responses which it stimulates. This fundamental principle underlies all forms of learning, whether the desired outcome be knowledge, attitudes, appreciations, or skill. The adequate stimulation and wise guidance of pupil-activity, in its appropriate forms, constitute the goal of all teaching technique.

OBSERVATION GUIDE FOR PUPIL-ACTIVITY

GENERAL PROBLEM: To what extent are the pupils putting forth *vigorous, purposive* activity of a desirable type?

A. *Pupil participation.*
   1. Character of attention given, as alert, formal, indifferent, or wandering?
   2. Extent to which pupils ask questions.
      a. Apparent purpose of questions?
   3. What share do pupils have in initiating topics for discussion or assignment?
   4. Relative number of pupils actually participating.
   5. Evidence of voluntary outside work, such as projects, investigations, or similar activities.

B. *Effect on pupils of teacher-activity.*
   1. Do pupils seem hurried too fast?
   2. Are non-participants overlooked?
   3. Motor or constructive activity used to attract and hold pupils' participation.
   4. General effect stimulating? In what ways?

PROBLEMS AND EXERCISES

1. It is frequently charged that the poorest teaching to be found anywhere is in our universities and colleges. Explain why this is likely to be the case.
2. Criticize this textbook from the standpoint of suggesting or stimulating coöperative student-activity essential to the comprehension of the principles which it presents. In which of your high school subjects did you find the textbooks most helpful in this respect?
3. Discuss the value of taking notes during lectures, in relation to ways in which various phases of learning-activity may thus be helped or hindered.
4. Motion pictures and the radio are strongly advocated by many as helps to school education. Under what circumstances might these be of decided value? When might they be a waste of time, in spite of well-chosen subjects?
5. If you had an opportunity to borrow, for one lesson-period, an exhibit showing cotton products in various stages of manufacture, explain what preparatory steps you would take to secure maximum learning-activity on the part of the pupils during the lesson.
6. Do you believe that a proper feeling of respect for authority is the result of the individual's own activities? Either show that this is the case, or explain in what other way it is acquired.
7. The statement is often made that learning takes place through the

individual's responses. Explain the sense in which the term response is used, and show what it may include.

8. Why is it a good plan, in most cases, to accept the conclusions of the pupils, roughly stated in their own words, rather than to give them a better wording?
9. In the light of the principles discussed in this chapter, formulate in your own words a definition of teaching.

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CHAPTER VII

THE PRINCIPLE OF INTEREST

1. *The nature of interest*

Relation of interest to self-activity. In the previous chapter, emphasis was placed on the necessity for self-activity. No effective self-activity is put forth unless there is a feeling on the part of the individual that there is something to be gained thereby. This feeling that a certain activity or object possesses value which justifies the effort required for its attainment or performance is known as interest.

The feeling of value which constitutes interest is very real to the individual, but is not necessarily in accord with the valuation placed upon the object by others. Children have many interests which seem to them quite worthy of the strenuous voluntary activities dedicated thereto, in spite of derogatory opinions volunteered by their elders. The difficulty, on the other hand, of trying to teach pupils the things in which they are not interested has always been a trial for schoolmasters, and they found this difficulty intolerable when really interesting things happened to compete for attention. In consequence, to meet this situation, there developed the traditional schoolroom custom of eliminating all distractingly interesting factors of competition from the environment, and artificially stimulating interest in the school tasks by a system of penalties and unpleasant consequences which threatened the non-worker. This interest, engendered through duress, was likely to be as brief and lukewarm as one's transient interest in an umbrella, and correspondingly inclined to disappear when clouds were not immediately threatening. But whatever

the kind of interest, whether the spontaneous, positive sort, or the artificial, defensive type, it supplies the indispensable motive power for self-activity.

Interest and attention. The influence of interest upon learning appears most directly in controlling attention. Out of a variety of possible objects of attention present in consciousness, consideration will automatically be given to those most closely connected with the vital interests of the particular individual. For example, a ten-year-old boy and his parents stopped for a moment to look at a large department-store window. When they were discussing its contents an hour later, each of them reproved the other two for failure to observe some very important articles on display. As a matter of fact, there was no lack of keen attention on the part of any one of the three, but the objects of intent scrutiny were automatically selected by the characteristic interests of each, which happened not to coincide. Similarly, in the schoolroom, when the teacher reproves a pupil for not giving attention, the latter might, in some cases, truthfully reply that he was giving very alert attention to activities and objects which seemed to him more interesting.

Books on teaching, written as late as a decade or two ago, gave extended discussion to the problem of securing and holding the pupil's attention. The fact that attention is indispensable to learning justified their insistence in regard to it, but too many teachers in their zeal to secure attention lost sight of the basic facts of interest by which attention is controlled. The result was likely to be a superficial procedure which either developed an elaborate system of devices and tricks for intriguing the fickle attention of the pupils, or a coercive scheme of marks, reminders, and penalties for discouraging mental truancy. Consequently it seems more helpful and more in accord with the

best modern practice to make the problem of attention incidental to that of interest.

Positive and negative interest. As was intimated in a preceding paragraph, interest may be due either to a wish to secure some end attractive in itself, or to a desire to avoid some unpleasant outcome that threatens. There is no attentive activity and consequently no real learning without one form of interest or the other. As Thorndike puts it, in his *Principles of Teaching*[1] (p. 54): "The problem of interest in teaching is not whether the children shall learn with interest or without it; they never learn without it; but what kind of interest it shall be; from what the interest shall be derived." The teacher must therefore face the problem of deciding which type of interest is the more profitable one to use. That is, can more satisfactory results be secured with the same expenditure of time and energy through following the traditional plan of relying mainly on penalties and the other accompaniments of negative interest, or through the stimulation of positive interest and the utilization of activities intrinsically attractive to the pupils?

Looking at the question of interest from this business-like standpoint there are some very obvious disadvantages in the employment of negative incentives. In the first place the effort put forth under such circumstances is usually niggardly and reluctant. When one is trying to avoid an unpleasant outcome he usually endeavors merely to be safe. He wastes no unnecessary effort in activities with distasteful associations. Consequently the results attending such activity are inclined to be as stinted and superficial as the effort itself is grudging and half-hearted.

A second disadvantage arises from the fact that the interest aroused by fear of penalties is not ordinarily capable of claiming more than a marginal share of the pupil's

[1] A. G. Seiler, publisher.

attention, however ostentatiously he may present the appearance of attentive work. In reality the most lively factors in the pupil's consciousness, those successfully competing for his covert attention, are the ones arising from his positive interests. In such an unequal struggle the divided and shallow mental effort secured by such methods is unprofitably feeble and barren of permanent attainments. It should be conceded that situations still occur in the ordinary schoolroom in which the resort to negative incentives seems unavoidable. But the progressive teacher will make such procedure the exception, to be used only as a final recourse.

The remaining discussion in this chapter will deal with the more desirable and profitable type of interest which calls forth willing activity on the part of the learner. It is of vital importance that the teacher understand certain characteristics of positive interest, together with its sources and practical applications.

Interest not connected with easiness. Many teachers have objected to what they called "catering to the interests" of pupils, because they assumed that children were interested only in easy things. As a matter of fact children pay little attention to the element of easiness in pursuing interesting activities, and the reckless, unsparing way in which they lavish their energies or even endanger their health in carrying on interesting undertakings is a source of anxiety to every mother. On the playground, where the characteristic behavior inspired by interest can be most clearly observed, nothing is more apparent than the contempt of all children, except the youngest, for the easy childish games of those younger than themselves, and the corresponding eagerness to display their prowess in performing the difficult undertakings engaged in by older children.

The way in which interest may transform what would otherwise be intolerable drudgery is illustrated in an incident which came under the writer's observation. During the final summer of the World War, when the cultivation of home gardens was accepted as a patriotic necessity, a college instructor, who had a son nine years of age, planned a garden which he and the boy were to cultivate together. In the early spring the work did not seem irksome, but as the hot days of midsummer arrived the father agreed with the lad's emphatic protestations that the work was too hard to be carried on except for a short time in the early forenoons. Accordingly, after a brief period of garden work each morning, the boy would join his playmates to enjoy a well-earned rest. The father soon noticed, however, that his son seemed unusually grimy from dust and perspiration when he would come home to eat a hasty lunch before returning to his play. An inquiry revealed the fact that he, in company with three other boys, was constructing an elaborate system of trenches in the dry hard soil of a vacant lot not far away. All through the hot afternoon they were carrying on the spirited work of perfecting their fortifications.

The father decided to ascertain, if possible, who had succeeded in inducing his son to engage so enthusiastically in such strenuous labor, so he asked who was the ranking officer. "Billy is our Colonel," was the boy's reply. "And what is Phillip?" "He's a Major." "And Donald?" "He's a Captain." "And what are you?" "I'm a Lieutenant!" "But who are the privates?" "We haven't any." "Then if there are no privates, who does the digging?" "We all do. We have to dig or we can't be officers."

Other characteristics of interest. Most of the activities which children find interesting are so instrinsically, and

not because they have any so-called "practical" value. Consequently the often-used appeals employed by teachers to the effect that certain things are practical and that therefore the children should be interested in them, are wasted effort so far as the children's responses are concerned. The principle is equally valid for adults. One who dislikes walking feels no mounting enthusiasm for it because of its recommended values, although the latter may make it more endurable. Those who like fishing or golf derive adequate satisfaction from the activities, and would feel no need to justify them by utilitarian values were it not for their practical friends. Someone has said that dishwashing is both easy and practical, but wholly uninteresting. Observation of the effects upon pupils of too much reference to values which they have not yet experienced leads one to the conclusion that the response is as likely to be unfavorable as favorable to the work proposed.

Although children are not drawn in their interest toward things that are easy, or toward things that are practical from the adult's standpoint, nevertheless their natural interests are best held and strengthened by activities with rather exacting requirements. One element of fascination for the boy who is building a radio set is his realization that the "hook-up" must be just right or the results will be unsatisfactory. The secret of the continued interest which Boy-Scout activities are able to command lies in the definite and precise character of the requirements, and the series of exacting tests which must be met as a condition of each stage of advancement. Even the voluntary boy's gang will usually be found to have evolved some "blood-sealed" regulations to which every member must subscribe. The game that has no set rules, the team whose members may do as they please, and the undertaking which has no clear-cut challenge to skill are all incapable of holding

continued interest and enthusiasm. In accordance with this same characteristic any interest which the pupils may feel in particular classroom tasks and activities is strengthened and retained by reasonably high, exacting, and definitely understood requirements, or is lost, along with their respect, when these are vague, slipshod, and irregularly enforced. The term which has been applied to the easy-going, spineless practices which seek to arouse the interests of the pupils through mere entertainment is "soft pedagogy." The reason for the failure of such methods to secure productive interest or consistent learning-activity should be obvious to any one at all familiar with child psychology.

Sources of interest. The most important question in regard to interest, from the standpoint of the teacher, is that of its sources. No one who has ever observed the work of any interested pupil and has noted the greater effectiveness and persistence of his efforts, or the greater clarity and permanence of his learning, has any doubt of the advantage in favor of interest. Most teachers will earnestly wish that the blessing of interest may descend upon their pupils, but they know also that it does not come merely with wishing. Either the inner response of the pupil is favorable or unfavorable to the work proposed. The former practice was to use positive interest, if it was present, and, if it was absent, to use sufficient compulsion and penalties to get the work done anyway. The modern teacher tries to find the causes for lack of interest, and, knowing the futility of asking productive work without it, strives to utilize the interests which the pupil naturally possesses through connecting them with the work to be done.

To accomplish this requires an understanding of the inborn impulses from which interests arise. These are

known as instincts, and the study of them constitutes an extremely interesting field of psychology. Although many details in this field are still unsettled, enough contributions of a reliable nature have been made to be of great value to the teacher who is seeking a sound basis for interests.

Instincts and learning. For practical purposes, an instinct may be defined as an inborn desire for and tendency toward some particular type of activity. The individual may or may not have inherited the necessary motor adjustments for performing the desired activity. In the case of the lower animals, this preparation is usually inherited practically complete. That is, the animal has inherited the necessary adjustments of nerves and muscles for performing nearly all activities that it will ever desire to perform, so that there is very little need for later modification, and consequently small opportunity for education. It is in the need and capacity for making desirable adjustments that the possibility of education lies. For example, the chick comes from the shell "knowing how" to do everything that seems worth doing from the standpoint of a chick. In its later life, no education will be needed or possible, unless the discovery of the easiest sources of food supply and safety be given that designation. A dog is capable of learning a considerably wider range of activities because his instinctive tendency to obey a leader or master and his desire to win the approval of that master, even at the cost of discomfort and inconvenient performances, constitute an opportunity for learning whatever adjustments may be necessary in order to satisfy those desires.

In contrast with the comparatively limited needs for learning among lower animals, man inherits a rich legacy of instincts, very few of which include ready-made adjustments for their satisfaction. Except for a few vital func-

tions, man must find, through experience and learning, the means of satisfying the host of instinctive desires which he feels, and the urge to discover newer and better means of fulfilling these desires continues throughout life. Therein lies the possibility of education — man's most valuable and distinctive inheritance. The fundamental uniformity of human instincts and desires constitutes a universal kinship. As Kipling said, "The Colonel's lady and Judy O'Grady are sisters under the skin." The great work of civilization has been and will continue to be the gradual elimination of the crude, the vulgar, and the vicious behavior as expressions for various instincts, and to substitute constantly wiser, better and more altruistic forms of activity in satisfaction of the same instincts.

The school, as an institution for promoting social welfare, faces this task daily. It has a tremendous advantage in the fact that its children come with a keen realization of the incompleteness and inadequacy, in most cases, of their means of satisfying the ambitious promptings of their instincts, and are hoping to acquire in school the knowledge and skill essential to the desired activities. The school must meet these instinctive needs and demonstrate the value and significance of the material it offers, or suffer from having the pupils turn in disappointment to other sources. Their resultant behavior is frequently silly and troublesome, but the insistent hunger for something to appease their instinctive desires seizes upon even the trivial or mischievous, and the undesirable interests thus formed force a double task upon later education.

The problem of school interests. It will not be possible in this discussion to enumerate in any comprehensive way the characteristic instincts out of which the varied interests of school children arise. An attempt will be made, however, to mention some which have more than ordinary

significance for the teacher. These instincts not only constitute vigorous and immediately available sources of interest, but will be found in most cases to have already attached themselves to activities not altogether in harmony with the purposes of the school.

The teacher's problem under such circumstances takes on a double form. Not only must acceptable activities be devised to utilize the natural desires and tendencies of the pupils, but undesirable forms of expression for these desires must frequently be supplanted. Mere suppression of unacceptable behavior is a poor solution to the problem. In the first place the use of such means neglects valuable possibilities of energy and activity, which are only awaiting wiser direction. In the second place one may be very sure that a vigorous normal instinct will find some outlet, and, if thwarted in one line, may assume, perhaps clandestinely, some other form even more subversive of wholesome aims.

In subsequent discussion an attempt will be made to explain the nature of the more important instincts available as sources of schoolroom interest, and to suggest ways in which these may be turned from disturbing influences, as many teachers find them to be, into allies for achieving desirable educational results. The skill of a teacher takes one of its most profitable forms when it utilizes an instinctive interest of a pupil for mastering what would otherwise be a dull and laborious task.

2. *Instincts most adaptable for school interest*

Imitation and imitative play. One of the most prominent tendencies of small children is that toward engaging in imitation and imitative play. The prospective teacher who will take time to study the activities of children on the playground — that rich laboratory of materials for the student of child psychology — will soon discover that

imitation of the serious activities of older people is the most frequent characteristic of the play of small children. Since voluntary play at any stage of life is determined by the dominant instincts seeking fuller expression, this fact points the way toward utilizing a powerful natural interest of small children. If left undirected in the classroom it may take undesirable lines of expression. For example, one young teacher complained that she could not keep her primary pupils from copying. As a matter of fact she did not realize that this very tendency skillfully directed was a most valuable means of inaugurating some very important learning activities.

Such items as correct posture, courteous manners, necessary schoolroom routine, hygienic habits, and similar matters can be perfectly taught through imitative play far more easily and with more permanent and far-reaching results than in any other way. The initiating of correct forms in writing, practice of proper pronunciation, mastery of phonic elements, and the learning through games of the earliest numerical facts are examples of the way in which the instinct of imitation may be used to lighten and vitalize the task of learning some extremely important but not intrinsically interesting items.

Rivalry and competitive games. As children become a little older their play reveals that the dominant instincts are taking on a competitive character. It is probably well to emphasize here that the newer psychologies do not speak of a play instinct as such. An instinct always tends toward the same type of activity in its expression. Play, however, chooses at various times the most widely divergent activities as its temporary expression, because play is at any moment the natural outlet for those instincts that are most ready and insistent on release through activity. When, therefore, it is apparent that the instincts of the children

are taking on a dominantly competitive note the teacher should very carefully and with watchful caution make use of this universal trait.

This warning is sounded because there has often been a tendency among teachers to carry competitive exercises too far. The fact that this instinct is so easily aroused among children of the middle grades, and may be made productive of almost feverish activity when skillfully promoted, constitutes a strong temptation to the teacher to stimulate interest chiefly through this means. The difficulty lies in the constant danger of developing unsocial attitudes, and thus buying some small advance in skill at the price of undesirable qualities from a social standpoint. Another weakness in this appeal is in the inequality of responses secured. The quick, alert pupil who really needs no especial incentive to promote satisfactory learning activity is stirred up to greater effort, while the unambitious group who most need stimulation are likely to remain unaffected by what seems an unattainable distinction.

On the other hand, the school could hardly bear even a remote resemblance to the real activities of community life without taking on almost imperceptibly some competitive phases. Our industrial, political, and social life, even at its best, holds a nice balance between competition and coöperation. Our recreations derive their zest, in the great majority of cases, from the spice of friendly competition. From the membership contest in the Sunday school to the workers' teams in charitable drives, this same element plays a foremost part in praiseworthy human affairs. To attempt, therefore, to eliminate it from school activities would be not only impossible, but also undesirable. The aim should rather be to utilize the instinct of competition to stimulate group activities and to establish a sound spirit of true sportsmanship and fair play. Wherever

use is made of competition it should be in group undertakings, rather than as individual contests, so that all may be drawn into the activity desired and there will be a check against individualistic and unsocial tendencies. Above everything else the teacher should bear in mind that the competitive instinct will certainly find expression in some way during the pre-adolescent years, and that it will exert a permanent influence upon the child's standards of competition and fair play. The situation holds not only an opportunity to use a fruitful source of enthusiastic effort toward the accomplishment of necessary school tasks, but an even more important responsibility to see that social adjustments in connection with competitive activities in general are made in accordance with the social objectives of education.

Love of adventure. A characteristic trait among the developing interests of children, especially in the fourth to sixth grades, is a love of adventure. In some cases this may express itself in the form of truancy, but usually the child is willing to participate vicariously in the adventures of others as he encounters them in the oral or written story. The teacher who attempts to discourage such reading may find that the pupils are secretly reading and circulating stories of adventure and romance which are usually not wisely selected. Even where the teacher succeeds in eliminating what seems distracting competition of this sort, and insists that the pupils confine their schoolroom attention to the more prosaic textbooks, he is likely to find the pupils showing a distaste for reading in general.

This source of interest wisely used can be made productive of one of the most valuable outcomes which the school can foster. To develop skill in reading — the easy, rapid, silent reading which involves the minimum of labor — and at the same time to develop that genuine

love for reading which is dependent upon ability to read without undue effort, both require many hours of attentive practice while the mechanics of reading are being mastered. Such practice can be secured only through the voluntary activity of the pupil, and there is nothing which so perfectly provides the eager attention and the alert questioning attitude which sweeps rapidly through sentence after sentence in quest of each recurring event, as the fascinating story of adventure. The resultant willing application through uncounted hours is invaluable toward acquiring the skill which is so necessary for successful work in the upper grades. The teacher can hardly make a more valuable use of any childish instinct than by wisely selecting a generous range of absorbing story material, whereby to mint the child's love of adventure into love of reading and facility in exercising it.

Mental activity and curiosity. One of the most valuable instincts for educational purposes is the peculiarly human tendency toward mental activity and curiosity. So far as we know, the lower animals are immune to *ennui*, but the human being is never so unhappy as when he has nothing with which to concern or employ his mind. As first aid to those threatened with this unhappy condition, commercial amusement vendors produce their succession of novelties and the daily press unfolds its spread of news, featuring the unusual, the sensational, and the spectacular. Out of this instinct comes an interest in puzzles, riddles and conundrums — whatever challenges the mind to new conquests and new discoveries.

When no adequate provision is made in the schoolroom for proper employment and guidance of this tendency, the resultant idle curiosity is likely to concern itself with every type of trivial distraction. For example, a student sent to observe conditions in a study-room reported that one boy

had spent fourteen minutes foiling the attempts of a fly to escape from his inkwell, and that eleven other pupils had become absorbed spectators before the teacher interrupted the proceedings.

This instinct supplies the chief motive power for problem-solving, and holds such valuable possibilities that the teacher should plan to use it in every available manner. Modern classroom practice is constantly improving the technique of the problem lesson, as will be set forth in a later chapter, and now such subjects as geography, history, civics, and certain phases of silent reading are organized into problems in order to utilize an instinct to which formerly only arithmetic offered any deliberate challenge. Even in the primary grades a most effective use of this tendency can be made by employing simple riddles, guessing games, and tantalizing little questions to which an answer must be found in the material of the lesson.

Physical activity and manipulation. This constitutes one of the most constant and adaptable of all instinctive sources of interest. Hours of absorbed attention are voluntarily given by old and young to fancy-work, toy-construction, mud-pie manufacture, reassembling mechanical contrivances, or even to plain whittling and similar purposeless activities. In the schoolroom, when not sufficiently engaged along educative lines, it appears continually in unprofitable forms. Paper darts, pin-wheels, knives, pins, and the ubiquitous rubber band with its numerous possibilities, are samples of the tools which restless fingers employ through the urge of the manipulative impulse.

Among the smaller pupils, this tendency inspires the delight which is taken in skipping, marching, directed games, board work, and constructive projects. The countless ways in which such lines of activity can be made

to further educational aims contrast happily with the former policy of repression and attempting to keep little children primly seated in orderly rows. As the pupils become older, their interest prefers more purposive and extended activities, and is correspondingly willing to pursue more involved tasks with less immediate results, provided only that the situation afford adequate opportunity to handle materials in a constructive way.

The range of valuable uses which can be made of this natural source of interest is practically limitless. It constitutes in a majority of cases the most important factor in the appeal which constructive projects make to children, a procedure which will be discussed in detail in a later chapter. Manipulative activity in connection with school work serves at least three important functions — arousing interest through its instinctive appeal, assisting concentration by furnishing a needed variety of closely related lines of activity, and clarifying thought through constant application and reference to real experiences.

Expression and communication. Another very strong and characteristically human instinct is the desire to tell things. It is social in character, and depends for its satisfaction upon properly "impressing" the listener. The thrill felt by the normal individual at being the first to tell an unusual item of news explains the basis for the proverb, "Bad news travels fast," and also the fact that news is likely to become increasingly impressive as it travels. While this instinct prompts much idle communication and even malicious gossip, it is also responsible for more volunteer recitation activity than any other source, and saves many recitation periods from deadly dullness.

In order to harness this ready source of motive power and put it to profitable work in the schoolroom, it is first necessary that an opportunity be provided for the pupil to

receive an appreciative hearing for what he has to present. In return for this satisfying privilege, the pupil can be led to accept reasonable and desirable restrictions as to the material presented. Capable teachers make very effective use of this instinct to secure individual investigations and reports, to have supplementary readings prepared, and even to establish good standards of oral English as the price of the coveted opportunity of impressive communication.

Classroom conditions are so frequently unfavorable to the most profitable use of this source of interest that a word of comment and warning seems in place. When all pupils have prepared the same material, and all are consequently supposed to know already what the one reciting is to tell, the situation is hardly such as to lead the pupil to expect the appreciative hearing necessary to the satisfaction of this impulse. Accordingly the pupil recites in monosyllables or gives only desultory, disjointed fragments of what he has read — any brief way to escape the discomfiture attendant upon telling something which his audience unmistakably indicates to be an old story. The result of the continuous recurrence of this situation is the mutilated language so frequently heard in the classroom. There are, to be sure, many times when the pupils of a class should all study the same material, but a better way can be found of determining the results of their study than the depressing plan of having it badly retold to a bored audience, even if the effects of this latter proceeding were not subversive of good habits of expression. On the other hand, well-planned assignments and socialized recitations which call forth extended and well-considered contributions from the pupils are almost infallible signs that the teaching in general is effective.

Ownership and collecting. The desire to possess things is sometimes designated as the instinct of ownership and

sometimes as the instinct for collecting, depending largely upon whether the objects desired have mainly a commercial or a sentimental value. The commercial value makes a stronger appeal as the child grows older, but up to the early high school years his interest in ownership is largely a matter of personal gratification, with little relation to the intrinsic or commercial element. This fact makes the characteristic more serviceable as a source of interest for school work.

When utilized in connection with specific school subjects, this instinct usually proves most fruitful for stimulating interest in phases of geography and of arithmetic. Measured by the frequency of collections reported, it would seem to be strongest about the fifth grade, although the tendency is notably persistent among junior high school pupils. In fact a common collecting interest is often a stable basis for club organization in the seventh to ninth grades.

A very serviceable and rather widely adaptable form in which this tendency for collecting may be employed is in preparing scrap-books. While the interest in this may not be so keen in every case as in accumulating other objects, it is not difficult to develop real enthusiasm for distinctive compilations with very marked value in illustrating and vitalizing school work.

Love of approval. The desire to win the approval of others wields a powerful influence at all ages. In the lower grades it is the teacher's approval which is most sought by the pupil as recognition of his efforts. As the child grows older, he gives relatively greater weight to the approval or disapproval of his schoolmates. This affords an opportunity to utilize effectively some form of the socialized recitation. The valuable possibilities of this kind of recitation procedure are taken up in a later chapter in

connection with the appropriate technique for its use. Consequently, attention need be given here only to those situations in which the stimulus is a desire to win the teacher's approval.

As was pointed out in an earlier chapter, satisfactory working conditions in the schoolroom require a friendly, coöperative relationship between teacher and pupil. When this exists, the respect naturally felt by the pupil for the judgment and leadership of the teacher in matters of learning make him willing to put forth unusual effort in order to secure commendation from that source. In fact, the surest indication of wholesome conditions and competent teacher-leadership is the predominance of such an attitude among the pupils. Wisely used, this form of appeal constitutes an extremely valuable ally for the teacher, as it does for a leader in any line of activity. By discreetly bestowing or withholding commendation, the teacher may encourage the plodder, correct over-assurance, strengthen morale, and equalize effort in a way possible with no other single form of incentive.

Possibilities for misuse. After emphasizing in this way the important uses which may be made of the child's normal desire to win the approval of the teacher, it is but just to add that it is equally susceptible of misuse. It is a duty of the school to develop independence and self-reliance in the pupil. Many teachers of the "strong personality" type, however, develop among their pupils such deference to their approval and even personal tastes as to make the development of any worth-while independence practically impossible. Such benevolent domination is unjust to the pupils and unfair to the next teacher. Dewey, in Chapter IV of *How We Think*,[1] has sharply criticised this fault in the following words, which, though often quoted, still remain the best presentation of this condition:

[1] D. C. Heath & Co., publishers.

Teachers — and this holds especially of the stronger and better teachers — tend to rely upon their personal strong points to hold a child to his work, and thereby to substitute their personal influence for that of subject matter as a motive for study . . . . In this way the teacher's personality may become a source of personal dependence and weakness, an influence that renders the pupil indifferent to the value of the subject for its own sake.

On account of this danger, the wise teacher usually prefers to use this means of stimulating interest chiefly as a reserve or emergency measure. Realizing, of course, that the pupil will, and should, desire commendation of his work, the teacher should nevertheless strive to have the learner's interest established upon a more intrinsic basis. Any suggestion of "Do this for me" will be scrupulously avoided. The many legitimate uses of personal approval as a spur to effort will best be kept for temporary and last-resort needs. In this way the special difficulties of the new subject, the discouraging handicaps of ill-health or enforced absences, individual problems of temperament or misfortune, and similar transitory needs may best be met by a more personal appeal without losing sight of the dominant aim — that of establishing interests upon relationships growing directly out of the child's contact with the work and environment of the school, as furnishing permanently valuable and acceptable forms of satisfying instinctive desires.

Keeping interests effective and wholesome. In connection with the foregoing discussion of some of the most common and available instinctive sources of interest, it should be remembered that these instincts are each adaptable to a wide range of activities, some of which are desirable, and others are not. No instinct is bad in itself — it is simply one element in the child's neural inheritance, bringing a record of some useful service in the course of

human development. A continuation of that development is possible because most of these tendencies have never evolved a specific form of motor-activity or situation as an unalterable form of outlet. Consequently it is the responsibility of the teacher to accept human nature as children possess it, but to direct their forming interests into desirable lines. The fact that a teacher is using, for example, the collecting instinct of the children as a source of interest may not be in itself commendable. The collecting may be taking forms devoid of any significant educational value or even subversive of sound social objectives.

The foregoing suggests two tests which may well be applied to any procedure for motivating school work. The first is; Does it really add interest to any worth-while school activity? Unless the child's native impulses have been turned into channels which give vitality and value to the constructive and necessary activities of the school, the procedure, however entertaining and spectacular, deserves no place in the program. The second test is, Does the activity by which interest is secured harmonize with the ultimate aims of education? Immediate interest, however keen, must not be purchased at a price which sacrifices permanent values. Procedures which give children an erroneous conception of the realities of life, which arouse selfish and unsocial attitudes, or which promote one educational aim at the expense of another, are not worth their cost. There are abundant opportunities for motivating school work by means which satisfy both the tests suggested, and the resourceful teacher will have no great difficulty in developing plans of procedure which secure vigorous and effective learning-activity through wholesome interest.

The real question with regard to interest is well put by Caldwell, in the *Teachers College Record* for March, 1925 (vol. 26, number 7), when he states:

Modern education wants harder, not easier, work for school children. Only by expending a larger amount of purposeful effort can better growth be secured. An observation of the score or more of public and private experimental school systems now working on this theory will convince the observer that pupils do work harder and more coherently. They also understand better, because the work so done is not only engaging, effort-commanding, and personally satisfying, but it is retained longer and more clearly just because of these things . . . . It is true that attention arbitrarily secured may enable a pupil to perform tasks in a somewhat mechanical way, but the real question is as to the effect upon the performer. He must be all present if he is to be educated, and all of him is not present if his interest, his educational motor, as it were, is absent.

Summary. Since learning must come through the pupil's own activity, it is essential that effective means be found to induce this activity. The feeling on the part of a learner that the results of an activity will be worth the effort is known as interest. Interest controls attention and through it the direction of mental activity. The interest necessary to learning may be negative in character, arising from fear of unpleasant consequences, or it may be positive and directed toward attaining some end intrinsically desirable. The latter is far more profitable, both in economy of effort and in the character of results. Real interest is not identified with ease or coddling, and is, on the contrary, marked by vigorous effort and exacting standards.

The sources of interest must be found in the native instincts of the child. Since these exist, for the most part, as desires and tendencies which lack completed adjustments for their satisfaction, there is possible a wide variety of activities to which each may lend its motivating energy. Such instincts as those of imitation, rivalry, love of adventure, mental activity, manipulative activity, expression and communication, collecting, and love of approval constitute some of the most useful sources for the teacher.

Through wise use of these abundant self-activity may be called forth in ways that are consistent with the social objectives of education.

OBSERVATION GUIDE ON INTEREST AND MOTIVATION

General Problem: How may sufficient interest be stimulated to give purpose and vitality to learning-activity?

1. Evidences of active, positive interest.
   a. Apparent sources of this interest.
2. Motives utilized by the teacher.
   a. Give instinctive basis of each.
   b. How vitally connected with the subject matter?
   c. How effective throughout lesson?
   d. Was their influence socially wholesome?
   e. How conducive to desirable permanent interests?
   f. Were any coercive measures necessary to secure or hold attention?
      (1) Apparent effect upon pupil.
      (2) Did this seem a regular or exceptional occurrence?
3. Indications of individual interests of pupils concerning particular points in lesson.
   a. How far were these encouraged or utilized?
4. List the instinctive interests shown by pupils in matters outside of lesson material.
   a. How could some of these have been utilized in the lesson?

PROBLEMS AND EXERCISES

1. In what sense is it true that there can be no learning without interest?
2. Some educators contend that subject matter which cannot be motivated should be eliminated from the course of study. Give arguments for and against such a position.
3. Give at least two examples, from experience, to show how certain material may make an entirely different appeal to the same individual at different times. Had this material been wisely arranged in the course of study, so as to take advantage of the most favorable period?
4. Why does a playground afford the most advantageous place for studying the natural and dominant interests of children?
5. Make a playground observation and report on the dominant interests of pupils six to eight years of age, and others ten to twelve years of age. Suggest ways in which these interests might be utilized in school work.

6. Give two examples of subject matter in which your interest was chiefly due to a desire to be with your crowd and follow the "fashion" of the group. Do you believe that the deliberate influencing of group interests into certain channels by the teacher (helping to set the fashion, so to speak) is a legitimate form of motivation? Justify your answer.
7. Give three examples of subject matter usually taught in the elementary school which you consider of sufficient intrinsic interest to the pupils as to require no additional motivation.
8. Select three topics or processes regularly taught in the elementary school which you think would need special motivation in order to secure vigorous, earnest learning-activity from the pupils. Explain in each case, what source of interest you consider most easily usuable for such motivation, and outline your plan for using it.
9. Give an example from your experience of a case in which the instinct of rivalry was misused, or stimulated into unsocial lines, in an effort to arouse greater application to some school work. Can you suggest a way in which this could have been socialized, or the same advantage secured without the ill effects?
10. The statement is made that problems are interesting only when they are the pupils' own problems. Illustrate the difference between an "assigned" problem and a "real" problem.

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Kilpatrick, W. H. *Foundations of Methods*, chaps. X, XI, XII. Very readable, informal discussion of interest, and the teaching procedure which best stimulates and retains it.

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CHAPTER VIII

THE PRINCIPLE OF PREPARATION AND MENTAL SET

Each response conditioned by previous experiences and responses. When sufficient interest has been enlisted to call forth a responsive activity, there still remains for the teacher the delicate problem of influencing the response in the right direction. This control cannot be accomplished through the situation alone, even when this is carefully planned in the most concrete form. For example, if a bird is brought into the classroom in order to give interest and concreteness to a nature-study lesson, there are numerous possible responses which any pupil may make to the situation, such as these: attempt to hold or stroke the bird, utter sentimental exclamations, make motions to frighten it, admire the movements and plumage, assume a superior and patronizing attitude, use the bird as a real or pretended target, or make an earnest attempt to learn more about it. The success of the lesson depends, of course, upon having the pupils make only the desirable responses. But this result is not primarily determined by the teacher's command or by the individual pupil's conscious choice. The predominant factor is a composite of the previous experiences and responses of each child, *especially those that are recalled and in consciousness at the moment in which the response occurs.*

One is tempted to say that everyone else understands and uses this fact better than the average classroom teacher. The child quickly learns that his parents vary in their responses to his desires and behavior in accordance with their temporary mental set, and often shows no little

cleverness in helping recall previous experiences which will make the response more favorable. We wait for the "psychological moment" to present an important matter, even to our best friends. The salesman takes ample time for the preliminary work of providing his customer with just the requisite information and for suggesting just the appropriate experiences to induce the desired response. Pupils often study their teachers more carefully than they do their books, and are skilled not only "to trace the day's disasters in the morning face," but also to propose topics and questions artfully designed to lead the teacher's thoughts and discussion quite away from the unprepared assignment. Yet it is not unusual to see a teacher take charge of a group of pupils who have just come into the classroom, buzzing with the events and hilarity of the playground, and then, with a sharp rap for order, demand that they begin immediately to make appropriate responses to "The Psalm of Life."

Two phases of mental set. The influences which affect the character of the response made to a specific situation are of two kinds. One kind arises from the factual, or *ideational* side of consciousness — the ideas, thoughts, and meanings drawn from previous experiences. These may or may not be appropriate and adequate for correctly interpreting the new experiences, but if they remain actively present in consciousness, or are recalled through some association suggested by the situation itself, they will modify the interpretation and response given. The other phase is the *feeling* quality of the mind-set, which predisposes one to be favorable toward certain ways of responding to the situation, and unfavorable toward others, quite independent of the facts involved and their interpretation merely as facts. Both these phases have great importance for the teacher, and the neglect of either

may prove disastrous to the results sought. On that account a somewhat detailed separate treatment of each seems justified, although in the best forms of teaching they often are merged in a single process of preparation.

1. *The ideational phase of preparation*

The mental approach. Common observation supplies abundant evidence of the characteristic tendency to interpret every new experience in the light of ideas prominently in consciousness at the time. The timid, wakeful individual, listening for burglars, hears them in every unfamiliar sound. The boy, looking for a lost marble, pounces upon every round pebble or curled, dry leaf. A well-worn trick of the comic stage is to have a character misinterpret the words of another through his own preoccupation with a wholly different line of thought. In most instances like those mentioned, where a misinterpretation occurs, there is also present a pronounced feeling which predisposes toward the interpretation chosen. The principle holds, however, even where there is no more definite feeling involved than mild curiosity or scientific interest. A student may find a problem in mathematics or science incapable of satisfactory solution when approached with certain facts and principles in mind, but has no difficulty in correctly interpreting and solving it later when a different set of facts has been recalled.

The importance of this principle has often been emphasized by educators who have usually referred to it as the doctrine of Apperception. That term is less used by modern writers, partly, perhaps, because it became associated with a somewhat over-formal procedure, and partly because it has not always connoted clearly enough the vital bearing of the feeling side of the mind-set in influencing the response. But the essential truth of the principle has

lost none of its validity, and its appreciation involves the recognition of three significant facts:

(1) Events, words and instructions have meaning to the learner only as interpreted through such of his previous experiences as are actively associated in consciousness with the present situation.

(2) The teacher's only means of directing the learning-response to the materials and activities of the curriculum is through this avenue, that is, through influencing such recall as will assure the inclusion in the mental set of the proper ideas and meanings.

(3) If the learner has not had the requisite experiences for correctly interpreting the material or instruction, his response will be erroneous, and no effort of the teacher will avail for correcting it until the needed experiences are met. Each of these facts deserves further discussion and illustration in its relation to classroom conditions.

Words and meanings. An attempt was made in Chapter V to emphasize properly the fact that the meaning of any word does not remain the same for different persons, but merely reflects the results of the self-activity of the individual in the light of the experiences which have been associated with that term. In our present discussion of the importance of a good preparatory mental set we may go even farther, and point out the fact that, even for the same person, a word has different meanings under different circumstances, and that his choice of the correct one for a particular situation is dependent upon an appropriate preparatory set. The word *strike* takes on widely varying significance depending upon whether the hearer associates it with labor problems, baseball, prospecting, or bowling. A little girl, taken to see her first baseball game, was quite nonplussed at being told that a strike was not a hit, but a miss, and another child, on hearing her father say, "The

miners will all strike to-morrow," pictured a long row of eager workmen with picks upraised for a mighty assault upon the great banks of coal.

When misapprehensions are so marked as to be wholly incongruous for the situation, they usually become apparent, and thus readily admit of correction. More troublesome are the less glaring errors of interpretation which escape discovery and correction, but which in turn prepare for still more fundamental misconceptions later. The only preventive for such misadventures is in careful and far-sighted preparatory guidance into a mental set conducive to a correct interpretation. This means that the teacher should, as far as possible, foresee and guard against the pitfalls and bypaths in the way of unmastered or half-understood terms, not forgetting that concrete applications with which the expression may be associated are vastly superior to mere definitions.

How learning may be directed. Since the actual adjustments and responses which constitute learning are strictly the outcomes of the learner's own activity, it is proper to inquire how and to what extent these may be directed. The response itself can be but imperfectly inferred, at times, from the child's incomplete or even evasive expression, and it is a rarely skillful teacher who does not frequently misjudge the character of the pupil's mental processes at any given moment. Even in cases where the child's expressions are convincingly indicative of satisfactory mental responses, a later test may reveal unsuspected errors. The proverb which extolls the "ounce of prevention" not only applies here, but suggests also the only reliable means by which the course of mental activity can be effectively directed along profitable lines.

It would perhaps be pushing analogy too far to say that the method by which the train of mental activity is guided

is the same as that employed by the switchman who sets the connecting lines of rails ahead of the "Limited," leading it out onto the trunk line toward its destination. And yet the "behaviorist" school of psychologists have a very convincing way of explaining the process through "language mechanisms" that work with similar mechanical certainty. Leaving out of consideration the disputed question as to how completely mental responses are the inevitable result of such mechanical antecedents, we may safely accept, as a matter of common agreement, the fact that the only practical, economical, and effective means of guiding mental activity in a particular situation is through inducing an appropriate mental set. By this method, and with unsparing care, the effective public speaker makes reasonably sure a generally favorable response to his final proposal and plea. The clever salesman pushes for his sale only after making sure that conflicting ideas have been counteracted before occasion is given for them to interfere actively with the decision sought. The teacher who fails to consider similar precautions usually faces sooner or later the more difficult task of trying to correct the results of errant and haphazard mental procedure.

Experience is indispensable basis. A realization of the dominating part played by responses to previous experiences in determining the reaction to any present situation implies a corresponding appreciation of the necessity for ensuring the possession of this basis by the pupils. While the inclusion of such precautions in even the most informal planning for a lesson would seem an obvious duty for a teacher, the frequency with which one finds pupils wrestling with words, directions, or even entire descriptions that are practically meaningless to them must indicate that the teachers themselves are not always conscious of this basic responsibility. A student-teacher, who was working with

a group of fifth-grade pupils in history, was discussing with them some assigned reading in which the term "trading-posts" occurred. Her use of the term was so ambiguous that the supervisor asked her after the recitation what she thought a trading-post resembled. The student naively confessed that she thought some words were to be "learned" because they were in the books, without "bothering to imagine what the things themselves looked like." Although it is hardly probable that such divorcing of words from the realities which they should signify is at all general among teachers, there is an ever-present danger that pupils will be pushed into "learning" and using terms quite beyond the interpretive range of their meager experiences. This danger was demonstrated by G. Stanley Hall as early as 1880, when, through his study of children entering the first grade of the Boston schools, he discovered that 19 per cent of them did not know what a *hen* was, 77 per cent did not know that a *crow* was a bird, and about 78 per cent had no idea what the word *dew* meant. A corroborative test of this condition is possible to any teacher who will choose similar words from a first-year reading book and attempt to learn, by tactful questioning, what objective meaning the words have for six-year-old children entering school.

The remedy for this condition is, of course, to see that the children have opportunity to secure the essential experiences. The modern kindergarten accepts as its chief function the task of introducing the child to concrete materials, social activities, plants, animals, and the various realities from which he can build a rich and fruitful background for his later work in reading. In the first grade there will still be the duty of supplying the children constantly with first-hand experiences to keep pace with their expanding reading vocabulary. In fact, the careful and skillful teacher will be noting evidences of similar needs

through all the grades of the elementary and secondary schools, and will seek always to utilize in every subject some form of the laboratory methods which science teachers find indispensable for giving reality and meaning to the pupil's contact with terms and relationships.

2. *The feeling phase of the mind-set*

Inseparably connected with the ideational phase of the mental set, and perhaps of even greater importance in influencing the character of response, is the feeling or affective phase. In a general sense, all purposive mental activity is directed toward the achievement of a chosen end. This is what Kilpatrick has called "mind-set-to-an-end," and it predisposes toward only such responses as are in harmony with that purpose. The reader will probably recognize this phase of the mental set as closely related to interest, since it represents the more or less temporary and changing hour-to-hour manifestations of the more stable motives and tendencies discussed in the previous chapter. There is also another important aspect of the mind-set, upon which depends whatever permanent effects the present response may have in establishing attitudes and appreciations. The significance of both these aspects is such as to merit further explanations and illustration.

Purpose as selective and unifying force. The fact of giving attention implies that the object receiving this attention is felt to have some significance. The nature and vigor of the response made depends upon how intimately the object of attention is felt to concern the purpose of the moment. At times, of course, the individual has no conscious purpose beyond that of remaining comfortable and safe, or of being passively amused, and attention is correspondingly relaxed. At the opposite extreme is the alert and aggressive mental set, intent upon the attainment

of a definite objective, and selecting for attention those elements in a situation which seem to have bearing upon its purpose. Consequently, when the learner brings such a mind-set to a new situation and to a new array of material, the significant elements immediately receive active attention and are given unity and meaning in the light of the organizing purpose. For example, if the pupil is planning to construct a product-map of his State, his reading of descriptive matter, his scanning of pictures, and his study of such exhibits as are available will all be alert and constructive, bringing into emphasis and relationship many details that would have been otherwise neglected and meaningless.

The principle of preparation accordingly requires that the pupil feel a definite purpose as a condition of effective learning-activity. This is another way of saying that the situation and material must at all times be connected in some way with one or more of the fundamental interests of the pupil and thus given significance and value to him. The discovery of this connection which gives meaning and integrating reality to the recurring details of school tasks should be made by the pupil himself, and such an outcome is regularly possible with skillful preliminary guidance. The teacher who fails to develop with the pupils an appropriate and appealing aim, will find them unresponsive and inattentive toward school tasks, and the futility of trying to compensate for this by added pressure during the recitation will be revealed in the shallow and fleeting character of the results secured.

The background of appreciations. Quite apart from the element of purpose, there is another phase of the mind-set that may be called the general *feeling tone.* This is especially vital in case the situation is one intended to stimulate a response primarily appreciative or emotional in character. Every one is familiar with this condition in its

more pronounced form, popularly known as a person's "mood." Such expressions as these are frequently heard: "He is in a merry mood." "I am not in a mood this evening to attend a concert of that sort." "Perhaps he will be in a better mood to-morrow to discuss business." "Speak to him while he is in a generous mood." "We were not in the right mood to visit the art gallery this afternoon." While not always so marked as to occasion comment, this phase of the mind-set plays its part, to a greater or less degree, in the reaction to every situation, coloring the response with its peculiar tone, and helping or hindering the establishment of appreciations and attitudes desirable and appropriate to the particular situation.

This side of the principle of preparation is most frequently and most flagrantly violated in such fields as literature, art, and music, although its neglect may virtually defeat the most important aims in the teaching of hygiene, citizenship, nature study, and other subjects in which the cultivation of proper attitudes, tastes, and interests is a matter of vital concern. A more detailed consideration of the teacher's obligation in this respect, and of ways of fulfilling it, is reserved for Chapter X in connection with the Lesson for Appreciation. It should not be left at this point, however, without emphasizing the part which the pupil's temporary "mood" plays in his reaction to any kind of situation and material, and the consequent need for the teacher to plan constantly to provide for the most favorable mind-set which can be induced in preparation for a contemplated learning-activity. No other kind of effort on the teacher's part pays such satisfying dividends, whether judged by immediate or permanent results.

Some practical considerations and applications. In connection with the principle of preparation, there are certain considerations that are essentially corollaries of

it. In theory they would seem to be quite obvious, but in practice they are so frequently overlooked that definite reference to them seems justified.

The first of these deals with the necessity of keeping instruction on the learner's level. The most frequent fault in teaching, everywhere prevalent from kindergarten to university, is that of "talking over the heads" of pupils. The instructor apparently becomes so absorbed in the products of his own mental activity, and in the desire to formulate these to his own satisfaction, that he quite loses sight of the question as to whether the learners have had first-hand experiences which are at that moment recalled and available for interpreting the instruction offered. The result is wasted effort for the teacher, and perplexity or indifference for the pupils. There is little prospect of eliminating this fault until the quality of instruction is generally estimated in terms of learners' response rather than teacher-activity.

This consideration applies with equal weight to situations where the instruction seeks an appreciative response for which the pupils have had no basic emotional experiences. The spectacle of a teacher attempting to inspire immature children with enthusiasm for a literary selection portraying, however beautifully, emotional experiences that appropriately belong only to adults, strikes the thoughtful observer as both futile and misconceived. For example, some of Longfellow's familiar poems, such as *The Psalm of Life*, *The Light of Stars*, and even *The Day Is Done* involve this difficulty, in spite of their apparently simple language. In presenting such selections, the prudent teacher will refrain from calling for forms and levels of appreciation beyond the normal experiences of the children.

Another consideration which should be stressed is the importance of developing a style of teaching that makes

constant use of illustrative material. This may consist partly of the "laboratory methods" mentioned earlier in this chapter, whereby the learner is introduced to a richer fund of first-hand experiences, but it should be somewhat broader in application and utilize every means of making more graphic and concrete the materials of instruction. Most good teachers are characterized by their successful use of abundant illustrative devices, and by their not trusting to mere words to recall the appropriate experiences for comprehending new material.

Summary. The nature of the learning-response made to any situation is determined chiefly by the mental set of the learner at that moment. Consequently, any control or guidance of the response toward a chosen end must rely upon securing in advance a mental set favorable to the type of response desired. This is called the principle of preparation, and presents a double problem to the teacher, because the mental set has both ideational and feeling phases. While the best teaching usually secures both of these together, yet the teacher should be able to analyze every learning situation and make sure that each has been properly provided.

The ideational side of preparation is concerned with the stock of images, ideas, and meanings already possessed by the learner, and through a well-planned approach secures the recall of such of these as are essential for the proper interpretation of the significant elements of the new situation. The part of the preparation concerned with the feeling side of the mind-set tries to utilize the active interests of the learner for awakening a purpose appropriate to the use of the material, and also to recall experiences of an emotional or feeling-quality favorable to the proper appreciation and evaluation of the material involved. Without securing in this way a favorable mind-set no effective learn-

ing response is secured, and the reaction of the learner, due to a prejudicial attitude, may defeat the most valuable aims of education.

OBSERVATION GUIDE ON PREPARATION AND MENTAL SET

A. *Recall of appropriate ideas and experiences.*
   1. How was preliminary situation made favorable for this lesson?
      a. Items of previous knowledge brought to mind.
      b. Were these apparently adequate?
   2. Evidences of participation provided in preceding lesson.
      a. Did pupils aid in reconstructing the situation out of which the new purpose developed?
   3. Was informational preparation adequate, as shown by later developments?

B. *Emotional elements in approach.*
   1. Were the feelings or mood of pupils favorable or unfavorable at the beginning of the recitation?
   2. What means were taken to influence the attitudes of pupils —
      a. As to purpose and interest?
      b. As to background of mood in harmony with the appeal sought?
   3. Did the lesson make any direct appeal to appreciations or attitudes?
      a. Did the emotional preparation provide a sympathetic reception for this material?
   4. Did preparation for this lesson arouse purposes which are likely to carry on into later lessons?

PROBLEMS AND EXERCISES

1. Illustrate from your own experience how you have interpreted practically identical situations in entirely different ways, due to a difference in your mental set.
2. When you wait for "the psychological moment" to make an important request, are you thinking mainly of the "idea" factors or the emotional factors in the mental set of the person concerned? What does this suggest as to the type of preparation for pupils at the beginning of an important lesson?
3. There are many words in the language which may have two or more entirely different meanings, but in the great majority of cases only the correct meaning comes to the mind of any one who encounters the word in his reading. How do you account for this? Why are children much more likely to misinterpret such words than adults?
4. Criticize the analogy which likens the method of guiding mental

activity to the procedure of the switchman who sets the rails in advance, and thus determines the route of the train. To what extent may this give a true impression, and wherein may it be misleading?

5. Taking *The Day is Done* as the subject of a lesson explain what you believe would be an appropriate mental set for its appreciation. Would you emphasize facts or feelings in the preparation?
6. Have you ever had the experience of being unable to comprehend an explanation of a certain topic as presented, but had no great difficulty in understanding it when presented in a different way. Try to analyze your responses in the two situations, and account for the difference.
7. If a class is to have a recitation, what points of preparation do you think the teacher should make use of in respect to: (*a*) the pupils' background of experiences, and (*b*) the familiar facts which should be recalled as an approach to the lesson?
8. What relation does the fundamental principle of this chapter bear to the theory upon which a political speaker proceeds when he prefaces his discussion of issues by complimentary references to the locality in which he is speaking?
9. What does this chapter imply as to the nature of a good assignment for study?
10. The great scientist, Pasteur, emphasized the need of a "prepared mind" as essential to scientific discoveries. Explain his meaning, as you understand it.

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PART IV

SPECIAL TYPES OF LEARNING

CHAPTER IX

THE LESSON FOR HABITS AND SKILL

The basis for types of teaching. As was pointed out in Chapter II, learning consists in modifying one's behavior as a result of responses to successive situations. It should be remembered also that the results of any such learning experience take three characteristic forms, all present in greater or less degree. These are, first, a tendency to respond in the same way when a similar situation recurs; second, the meaning given to the experience through associating it with other experiences; and, third, the feeling of satisfaction, annoyance, or other affective tone connected with the situation and response. It is obvious that the first type of result would operate unchanged, whether the response happened to be a desirable one or not, if it were not for the fact that the second and third are sometimes unfavorable to the repetition of that particular reaction and impel the substitution of another response which yields greater satisfaction and accords better with other experiences.

This interdependence of the results of any learning-response has justified the insistence of many modern educational writers upon the importance of regarding every learning-experience as a unity. Some would go so far in respecting the "totality of an experience" as to disregard any distinctions in lesson types. This attitude, however, fails to recognize that the predominant type of result accruing from any learning-experience is determined by factors which are subject to the control of the teacher, and that certain experiences are peculiarly appropriate

for securing each of the three types of result as the predominant outcome. Not to direct, accordingly, the learning-activities in such a way as to cause each experience to yield its appropriate contribution toward the particular type of outcome for which it is best adapted is a surrender of leadership and a plain evasion of the teacher's responsibility. An adequate fulfillment of that responsibility requires, in the writer's opinion, not only a keen realization that every learning-experience has results which are threefold in character and so interdependent that the aim in one line may be defeated by an unfavorable outcome in either of the other two, but also the recognition that there is an appropriate technique by which the learner's response may be led to take the form best adapted to emphasize the type of outcome for which the material and situation have been especially planned. Such an attitude attaches due concern to preserving unity and agreement among the various phases of a learning-response, but seeks also to discover the typical form of learning-activity that determines which kind of outcome is to receive predominant emphasis. This chapter, and the two following, are concerned with examining the three typical forms which the learning-activity may take, each emphasizing a corresponding side of the response, and with developing a lesson technique appropriate to each type.

The process of habit-building. The first type of learning-activity to be considered is that which emphasizes and strengthens the automatic side of the response, and thus results in the establishment of habits and skill. Reduced to its lowest terms, the process seems extremely simple — it merely consists in repeating correctly the activity until it becomes automatic. The task of securing sufficient "correct repetition" to insure the reliability and permanence of the habitual response, however, involves a number of

factors which often call for the utmost resourcefulness and skill on the part of the teacher. Among these are the problems of making a correct start; safeguarding against errors in practice; securing and maintaining attention and coöperation, even when the activity has become monotonous and uninteresting; distributing practice in the most profitable and economical manner; and measuring progress with sufficient reliability to avoid the errors of too much or too little practice. The multiple character of these responsibilities, combined with the fact that the process must continue in every case over an extended period of time, thus necessitating repeated returns to the task, makes the procedure one which merits the most careful analysis and study by the teacher who is to undertake the effective direction of this type of learning activity.

1. *Making a correct start*

The guiding images or mental "pattern." It should be obvious to any thoughtful student that no attempt can profitably or safely be made to practice an activity with a view to making it habitual until the learner possesses a clear mental image of the thing to be practiced. Actual observation of classroom procedure, however, inclines one to the belief that negligence in this respect is responsible for more wasted and misdirected effort in matters of habit-formation than any other single factor.

The writer once visited a schoolroom in which the teacher was saving time in a crowded program by having one group of pupils work on their penmanship exercises, while she supervised the composition efforts of a language class. A pupil in the first group informed her that he didn't know how to make one of the letters. Her reply was, "Keep practicing on it until I have time to come and help you." She apparently did not realize that continued repetition of

incorrect movements was forming associations that later would confuse and handicap the learning of the correct one. Most people have constant difficulty with the spelling or pronunciation of certain words with which they happened to get a wrong start, thus engendering confusion which they have never been unable to overcome. Laxity on the part of the teachers in allowing pupils to proceed with practice, without making sure that every one has a clear and correct image to guide his efforts, is partly responsible for the discouragingly large proportion of time which must be spent on the depressing task of trying to induce children to unlearn wrong ways of doing things.

Varieties of guiding image. The difficulties noted above, arising from the lack of a clear image to guide practice are apparently due to the assumption on the part of the teacher that merely telling or showing the pupil what to do is sufficient. As a matter of fact, not only must care be taken to have each pupil secure the correct guiding image or mental pattern through his own activity and in his own way (which may differ from that of the rest of the class) but attention must also be given to selecting the particular variety of image needed in each case. One naturally thinks first of the visual image, which of course plays a leading part in learning activities. An example of its indispensable service is to be seen in guiding the beginner's efforts at word-recognition, as he practices identifying each word he meets in accordance with his visual images. If the latter are trustworthy and clear, his practice gradually leads to the sure and automatic recognition essential to progress in reading. There are other varieties of image which are as indispensable for guiding practice in other lines. One of these is the auditory image, which furnishes, for example, the basis for practicing the scale in vocal music. The teacher will sometimes ask the pupils if they can (mentally)

"hear" the next tone which is to be sung. Without such an auditory image, any attempt to practice for skill in tone-production is of course futile. The same kind of image is necessary for practicing recognition of spoken words, which involves quite different difficulties from those of sight recognition, as every student of a foreign language realizes when he attempts to "listen" to the language spoken by another instead of "reading" it himself.

In addition to the two familiar varieties of mental images mentioned above, there is another kind of extreme importance in guiding correct practice, but which is much neglected by many teachers. This is the kinesthetic or motor image, in accordance with which we direct our practice toward countless everyday skills. One must usually first get the muscular "feel" of the activity before progress can be made in such skills as "fingering" a musical instrument, shifting the gears of an automobile, using a typewriter, learning dance-steps, or acquiring the various kinds of manipulative dexterity called for in the kitchen, the shop, or the office. The success of a teacher of handwork or crafts classes is primarily dependent upon being able to help the pupils get the necessary motor image of each process, and no amount of mere telling, lecturing, or criticising clumsy work will compensate for an inadequate initial image. On the other hand, pupils often give audible evidence of their delight at getting the "feel" and mental pattern of some difficult process. Such pupils know, of course, that they are still far from a satisfactory degree of skill in performance, but they also know that they now have securely with them the mental pattern by which to guide and correct their practice, and are confident of sure progress in acquiring the desired skill.

Important place of motor images in habit-formation. Experimental studies of recent years have demonstrated that motor images play a much more important rôle in the acquisition of the fundamental habits and skills of learning than has been realized. Classroom procedure in general is still lagging far behind the scientific knowledge available in this regard. At the close of this chapter will be found references from which a more satisfactory understanding of the nature of these studies may be obtained, and space here will permit only some passing illustration and emphasis of the importance of having the right images as a basis for practice.

In the past, for example, most efforts at correcting faulty speech were directed at supplying merely an auditory image to the pupil through his listening to the teacher. Now we know that the learner must have a speech-motor image, and he is helped to arrange his tongue, palate, lips, and teeth so as to get an inner pattern of the activity which produces the correct utterance. The writer will never forget the delighted surprise of a sensitive Chinese boy who, by this means, was first enabled to hear himself sound correctly the letter *r*. A little girl, evidently from a home of indifferent culture, upon having a language correction suggested, said to her teacher, "It sounds all right to hear you say, 'It is I,' but it sounds queer to hear myself say it." The queerness which she experienced was probably quite as much in the speech-motor as in the auditory images. In handwriting the motor image must often supplement the visual image gained by merely looking at the written copy, before practice becomes effective. Many pupils find the value of a written copy of new letter forms very much increased if they can actually see it written by someone else, so that they may "follow through" the motor process and thus get the double image.

In the foregoing examples, it is in each case a motor activity which is to be made habitual. In some lines of learning, such as spelling, although the activity to be made automatic is a motor process, the image by which the learning is guided is more often a visual or auditory image, but even in the case of spelling, some pupils find progress extremely difficult until a hand-motor or a speech-motor image is established. In many learning-activities, the preferred type of guiding image varies with different individuals. It is also true that two or more kinds of image are very often connected with the same activity, especially in the first stages of careful practice. Such a condition is desirable, and it is well to have the presentation include as great a variety of images as have direct bearing on the response, not only to provide for individual variation among pupils as to the most helpful type of image, but also to safeguard the correctness of the practice through such reinforcement.

It is well to add that, as practice proceeds, motor images tend to drop out of consciousness, and attention is given only to the visible or audible results of activity. This is a desirable development, because continued attention to anything else shows up progress. Gates, in his *Psychology for Students of Education*, points out, for example, that the expert golfer should spend no time thinking how it feels or how it felt to make a good stroke. Gates even goes so far as apparently to discredit the value, at any stage, of trying to get an idea of how a movement feels. One is hardly prepared to believe, however, that he would question the importance of having a pianist at the beginning of his practice, for example, get the correct feel of striking a certain combination of keys. As the player continues his practice he very properly "forgets" that sensation until, in making an error, the feel of the *wrong* stroke

is noticed almost before the discordant sound, thereby revealing to what extent the initial correct feel had served to guide him.

2. *Avoiding errors*

Need for preventive measures. As a practical corollary to the foregoing considerations, the importance of safeguarding practice from errors and wrong responses is obvious. The child who is practicing the response, 8 plus 4 equals 12, may initiate his practice correctly and proceed successfully through the first four occasions which require the repetition of this reaction, but if, on the fifth recurrence of the situation, his response is 11 instead of 12, he is no nearer the establishment of a reliable bond than he was at the beginning. It is probable that the confusion and interference with the correct habit occasioned by false responses in this way counteract the gain resulting from a much larger number of correct repetitions, but, in the absence of reliable quantitative studies on this point, estimates vary widely as to the amount of harm done.

Failure to realize the importance of preventing erroneous responses, especially in the early stages of practice for a particular habit, is probably responsible for a very common type of poor teaching by well-meaning instructors. Through a misapplication of the traditional theory that "children should never be told anything which they can find out for themselves," teachers sometimes tolerate or even encourage the wildest guessing, rather than supply the correct response upon which undivided attention should have been concentrated from the first. The writer once visited a primary room in which a group of pupils had before them the word, "squirrel." Since none of them recognized it, the teacher urged them to "think." In response to her questions and hints their guesses ranged through the animal kingdom

from chickens to grasshoppers, until one boy spoiled the game for the rest of them by guessing the right answer.

This is perhaps an extreme case, but the character of the teaching was no worse, in the matter of introducing misleading associations and responses, than the following very common procedure in arithmetic. When a pupil hesitates over a combination like 6 times 7, the teacher instead of having the feeble image and bond reinforced directly, before a wrong step is taken, will often tell him to "think carefully." It is barely possible that a new effort will secure the correct recall, but, in the great majority of cases, such an admonition will cause the pupil to adopt one of three possible lines of action: he will begin guessing, he will count up from some preceding combination which he remembers, or he will mentally surrender and cease to attend to the stimulus. All three are false moves as far as the desired response is concerned. Even counting up, while it helps to arrive at a correct answer, introduces unnecessary and confusing details which have no part in the particular bond which should be practiced. The thoughtful teacher will try to avoid any step which is likely to obscure the connection or divert attention from the definite response to be established.

The need for vigilance on the part of the teacher to prevent the inclusion of errors in the pupils' responses is well emphasized by Gates, who says:[1]

> In the subtle elements of writing, speech, arithmetic, and other functions, the teacher should be constantly on the alert for errors that are likely to appear. She should detect them when possible before they become fixed, point them out to the learners, and attempt to introduce the correct reaction. When errors recur they should be challenged, and the proper response again suggested. . . . When the error is once eliminated, it should not

[1] *Psychology for Students of Education*, p. 277. Reprinted by permission of The Macmillan Co., publishers.

be mentioned again. Emphasis should then, in general, be placed on correct reaction; but the incorrect response when made should not be ignored.

Some applications of the above principle will be taken up in later sections of this chapter in connection with special discussion of the mechanical phases of the common-school subjects. The present topic should not be left, however, without a reminder that the "ounce of prevention" will save discouraging hours of corrective labor, which may not even then suffice to secure the confident, unhesitating reliability of response which is usually the product only of a well-inaugurated reaction, into the practice of which no avoidable errors or exceptions have been allowed to intrude.

3. *Securing attentive practice*

Continual care necessary. After the prospective habit has been safely launched, with a clear and definite mental image for guidance, there still remains the need of sufficient attentive and correct practice to render it automatic. Physiologically, this means the gradual transfer of the control of that response from the conscious direction of the upper nerve-centers to the mechanical custody of the spinal cord. The double advantage of an effective habitual reaction consists partly in thus freeing the upper nerve-centers for more important and unusual activities, and partly in the greater reliability and promptness of an automatic reaction. But the price that must be paid is careful and attentively directed repetition, patiently carried on during the necessarily prolonged period in which the appropriate nerve connections are being slowly developed. An understanding of the physiological basis which makes such extended practice necessary, helps the teacher to appreciate the need of patience and thoughtfulness in dealing with the shortcomings and slow progress of pupils,

and emphasizes the fact that there is no substitute for wisely directed and persistent practice as the learning-activity which establishes desirable habits.

The importance of keeping alert attention during practice rests upon two considerations. In the first place, if attention relaxes or wanders, the conscious direction which must be maintained until the response becomes automatic gradually fails to function, and the character of the activity suffers accordingly. Consequently errors and inaccurate performance become the rule, with the harmful effects noted in the previous section. The gradually deteriorating lines of the penmanship exercise is a familiar example of the insidious results of ebbing attention. Under such circumstances the learner is likely to conclude that practice does no good after all, and, in his discouragement, is ready to give up trying. The second consideration concerns the relative value of repetitions under varying degrees of attention. In general, there seems to be no doubt among psychologists that the attentive exercise of an activity produces much more rapid improvement than repetition with relaxed or wandering attention. This explains why children often make so much more impressive progress in mastering the technique of a game or play-activity than they do in learning simple schoolroom requirements. Either of these two considerations would be sufficient to justify careful provision for maintaining a high degree of attention throughout practice periods, but when both safety and economy are involved, the importance of enlisting the interest upon which attention depends — and of thus securing well-motivated practice — becomes of paramount concern.

The question of motivation and drill. As was pointed out in a previous chapter, all learning is dependent upon interest, because effective activity is put forth only when

the material is felt to have value. In many situations, the appeal to interest is inherent. This may be the case with the first stages of an activity which is to be learned as an item of habit or skill, but rare indeed are the cases where the activity itself continues to hold sufficient charm to carry the burden of monotony and withstand the competition of more novel objects of attention. Consequently, attentive effort can usually be maintained only when the activity has been reinforced by added appeal, derived from its connection with other interesting and desirable objectives.

The recognition of this fact led progressive teachers of a generation ago to develop numerous "devices" for stimulating at least temporary interest in drill material. These were a marked advance over the punitive measures formerly in vogue which sought to compel effort through fear of threatened consequences, and which, as we have noted in a previous chapter, secured usually only the superficial and relatively unproductive application which attends negative interest. The many and varied devices of the new era appealed to the positive interests of the children through introducing the drill material in the form of games, play activities, contests, and similar attractive guises. These brightened, in a decided fashion, what had formerly been the dreariest hours of school work. Many books and magazines for teachers specialized in these "helps," and the accumulated stock, large or small, of well-tried devices possessed by the majority of teachers, to-day constitute one of their most valued assets.

Not all of these devices, naturally, were of equal value. Many of them were criticized by thoughtful educators because of their questionable effects, their lack of any vital connection with the matter to be learned, and their artificial or even distracting character. In order to distinguish the better type of means for enlisting interest from the less

desirable sort, the term "motivation" came into general use. It is properly used to designate a plan of stimulating interest in school work by having the pupil discover its essential value to him as a means to the attainment of some desirable end, and having him realize that its mastery is necessary to the accomplishment of his own purposes. The lines of interest developed in this way, being vitally connected with the material and activities to be learned, are more likely to endure until the period of practice is completed, and are thus superior to the superficial devices which, having no integral relation to one kind of material more than another, give no real vitality to the work in itself and need to be changed frequently in order that the appeal of novelty may not fail. The best form of motivation is usually to be found in connection with project-activities, which will receive detailed discussion in a later chapter. The employment of motivation in the best form available should be regarded as an essential step in securing the maximum accuracy and progress in practicing for automatic responses.

The question is often raised as to whether any material should be retained in the curriculum which cannot be motivated — that is, material in which the pupil cannot be led to feel a significant value as directly affecting his aims and interests. However strongly the teacher may feel that this should be true, the fact remains that most teachers will find themselves in positions where some of the material which they are expected to teach cannot, with such skill and resources as they then possess, be as highly motivated as they should desire. Under such circumstances, they are justified no doubt in using the most effective temporary devices which they can command, keeping as an aim, however, the gradual substitution of genuine motivation whenever and wherever it is found possible.

Pupil self-direction in practice. One point closely connected with motivation in practice-activities deserves special emphasis. This is the fact that the most effective practice is, in a rather intimate sense, self-directed. By this is meant that the learner sets or accepts a goal, and then takes upon himself the task of working toward it. Many parents recognize the very day upon which a child apparently makes up his mind to learn to walk, and sets about doing so with a vigor that previous coaxing could not elicit. This influence holds not only with such undertakings as learning to swim, or to whistle, but also with schoolroom activities. The progress of the child who sets about learning to write in order that he may be able to send a letter to a favorite relative or friend, is in marked contrast to that of the pupil whose practice is teacher-inflicted, no matter how skillfully the outside direction is imposed.

The utilization of this truth should be a foremost consideration in any plan of motivating practice, and the best modern procedure is making progress in this respect. The needs revealed to pupils through well-planned projects often induce them voluntarily to undertake the mastery of some item of skill to which they had hitherto accorded only perfunctory and profitless effort. One notable value accruing from the use of standardized measures of achievement in school subjects has sometimes been in enlisting the pupil's own interest in achieving progressively higher scores on the objective scales which make self-measurement possible. In this way his handwriting, for example, may come to receive in at least a mild way some of the effective purposive effort toward improvement which has regularly been given to such activities as throwing at a target, or high-jumping. The value of thus leading the learner to set up, as a personal objective, the attainment of a certain skill is very apparent in laboratory experiments, and its

more general use in the classroom is recommended by Starch,[1] in these words:

> It would seem therefore highly desirable if there could be introduced into the schoolroom a similar atmosphere of motivation such as obtains in learning experiments in the laboratory. The knowledge of one's actual ability and of the actual amount of gain serves as an exceedingly powerful spur for the learner to surpass his own previous performances. The popular dictum, "Nothing succeeds like success," may be partly justified by such experimental results as the ones here cited. To see one's self gaining tends to stimulate greater efforts toward gain.

The extent to which the foregoing principle can be advantageously carried and developed in the schoolroom is not generally recognized. The feeling on the part of the pupils that they are sharing with the teacher the responsibility of directing their own learning always make a vigorous appeal to their interest, and the resultant progress almost always is gratifying beyond expectations. In the best schools of to-day there is a marked tendency toward developing greater independence and self-direction on the part of the pupil. In no phase of learning is such self-direction so important as in maintaining attentive and vigorous practice with a view to acquiring some type of skill. Even elementary school pupils can comprehend the simpler laws governing progress in this field, and they not only appreciate the advantage to themselves of regulating their practice according to those laws, but also enjoy the game of trying to beat their own records.

4. *Distributing practice*

Economy and progress. Inasmuch as this type of learning is likely to involve monotonous labor, it is important that the effort be so expended as to achieve the

[1] *Educational Psychology*, p. 165. Reprinted by permission of The Macmillan Co., publishers.

maximum results. Everyday experience suggests that the most economical way to acquire skill is through distributing practice by intervals over a reasonably prolonged period. rather than through attempting continuous and concentrated practice. Scientific studies corroborate this impression, and indicate that the most effective distribution of intensive practice in the ordinary drill-subjects calls for shorter daily periods than have usually been considered adequate. In the matter of handwriting, Freeman concluded from his studies that ten to fifteen minutes daily constituted the most advantageous arrangement. Similarly, Courtis was convinced, from careful studies of progress in mastering the fundamental operations in arithmetic, that "ten minutes a day, day after day, has proved adequate to develop proper habits of speed and accuracy."

Studies in other fields have yielded results in substantial harmony with these conclusions, although there is considerable variation, dependent upon the nature of the activity practiced. The character of the activities which have shown more profitable results from longer practice periods suggest that the variability may be due in part to the greater attractiveness and appeal of the activity itself, thus postponing the sense of monotony. After taking into account the variability indicated in the different investigations as to the most desirable period, Gates concluded that the range could be roughly set at from twelve to thirty minutes.

Principles affecting distribution of practice. The distribution of practice indicated above finds its basis in two facts, both of which have been at least implied in the preceding discussion. The first is connected with the necessity for maintaining alert attention, and the consequent waste that results from continuing practice beyond the period in which vigorous intensive effort can be assured.

Even in well-motivated lessons it is rare that an effectively high degree of attention can be maintained for more than fifteen to twenty minutes of practically continuous practice. The second factor affecting the proper distribution of practice is connected with the physiological basis of habit-formation. Inasmuch as certain neural adjustments in the form of synapses have to be established, it follows that time must be allowed for growth. Just as a boy ambitious to become a baseball pitcher would defeat his own purpose by overworking his muscles in practicing too constantly, so the learner striving for less strenuous types of skill incurs a similar risk if undue haste is attempted.

There are of course situations where the immediate need of a fair degree of skill is of sufficient importance to justify the less economical plan. For example, an individual who faithfully practices on a typewriter five hours a day for ten days, should acquire by the end of that time a fair degree of skill of an amateurish sort, but his movements will lack the deftness, ease, and accuracy that he could have attained by practicing one hour a day for fifty days, and thus allowing his psycho-motor adjustments to develop more normally. Such skill as is acquired under a forcing process is likely also to be correspondingly fleeting, unless made permanent by an extended period of use.

Practice for retention. One of the most frequent occasions for disappointment on the part of the teacher is the discovery that certain habits and skills which had, with much labor for pupils and teacher, been brought to a satisfactory standard have, after an interval of only a few weeks, deteriorated to a most discouraging degree. This is due to what the psychologists call the Law of Disuse, which operates to weaken all bonds which are not exercised, and tends to be especially pernicious toward those whose formation and use have occupied only a relatively short time.

The only cure for this is to provide in the distribution of practice for reducing gradually the time given to an activity, but also to plan situations which will require its use often enough to keep it alive and functioning. It is much better teaching procedure to have this repetition come in the form of applications, and of interesting problems which call for the exercise of particular skill, rather than in the form of abstract review. The intervals at which definite repetition is necessary for retention become gradually longer, but probably vary with the nature of the activity itself. In the absence of sufficient scientific data as yet to establish reliable rules in this regard, teachers must rely largely on their own experience and judgment in each case. The realization that "follow-up" exercises will certainly be required will usually suffice to keep the teacher on the alert for indications as to the need.

Measuring progress and maintaining standards; how measurements help. The new scientific measurement in education has made one of its most noteworthy contributions to the technique of teaching fundamental skills. Prior to that development, the proportion of school-time given to drill, the relative emphasis allotted to particular processes, and the determination of the standards to be attained were largely a matter of individual opinion or caprice on the part of the teacher, the supervisor, or perhaps the school trustees. Each teacher might have methods for conducting drill which were either good or bad, and there was no reliable way of determining relative merits among the widely varying procedures. With the introduction and development of standardized objective measurements of classroom results there became available a trustworthy means for determining relative values. As a result of this contribution, the teacher of to-day is enabled to set the standards of proficiency to be sought in fundamental

skills in accordance with scientifically determined social needs, and measure accurately the progress of his pupils toward that objective — not only in relation to their previous achievements but also in comparison with the corresponding progress and achievements of similar groups of pupils throughout the nation. The good or bad results of a particular method of stimulating and directing learning-activity may be impartially revealed and teaching procedure thus be standardized, so to speak, in accordance with the principles demonstrated as valid. It was this cold-blooded measurement of the quality and permanence of results which revealed the real inefficiency of harsh "drill-master" methods, and proved that an intelligent appeal to genuine interest and pupil-coöperation was more fruitful in achievement as well as more economical of energy.

On account of these valuable sources of aid, every teacher should become familiar with at least some of the most widely used scales for measuring the various types of skill to be acquired by pupils of the grade taught. In this way guesswork can be eliminated, both as to progress and as to the degree of proficiency which may reasonably be demanded. Not the least of the possible benefits for the teacher is the possession of means for testing the efficiency of his own teaching, and of thus introducing into his work the spirit of progressive experimentation and self-improvement. Many teachers have found in this way added satisfaction and professional growth through the discovery of unsuspected possibilities for creative work in what had formerly been the most arid region of schoolroom duties.

Standard practice materials. The studies in scientific measurement have included also a supplementary service in determining the relative importance and relative difficulty of various items of skill commonly included in the

course of study. Each of these has been the result of prolonged and painstaking investigation, and deals with such questions as the amount of practice each particular item will ordinarily require, to what age or grade of pupils it may most appropriately be taught, what special difficulties are inherent in certain processes, and similar points of vital importance in the effective direction of learning-activities, but which would otherwise be matters of mere conjecture on the part of the teacher.

Sets of practice materials have been compiled in conformity with these findings, and constitute valuable help for the teacher. For example, those in arithmetic designate the length of practice periods, allot the correct proportion of time to each combination or process, provide recurrent exercises to ensure the retention of skills already acquired, and test progress frequently in a way that automatically prescribes additional practice on the particular forms where it is most needed. Well-known practice materials in arithmetic are those prepared by Studebaker and those by Courtis, although other excellent sets are available. In spelling, an extremely valuable summary of studies on the selection of word lists, relative difficulty of words, and helpful instructions for directing practice will be found in Tidyman's *The Teaching of Spelling*. Freeman has prepared similar assistance in the teaching of handwriting, and almost every system of teaching reading has its manual of instruction which is based on extant studies in the subject. If the teacher does not find these ready-prepared materials furnished by the school authorities, it will be a wise investment to get samples as a source of suggestions and guidance. Above all the teachers should be ready to recognize the value and utility of such contributions, and to endeavor, with open mind, to readjust teaching procedure in accordance with them.

Is incidental practice sufficient to maintain adequate skill? In a previous chapter we noted the importance of utilizing the natural interest of children, and keeping school-activities of a sort in which the pupils could engage normally and whole-heartedly. At various places in the present chapter reference has been made to the inherent monotony of continued practice, and to the difficulty of maintaining sufficient interest for effective learning. Certain educators believe that the effort to find harmonious solutions for both these problems becomes impossible when the practice takes the form of abstract drill on specific processes. They insist that it is largely futile and subversive of wholesome learning conditions to ask a child to practice upon an activity for which he has not yet found a sufficient need, in connection with a real situation, to induce him voluntarily to undertake its mastery. This extreme insistence on thorough motivation was discussed in a previous section of this chapter. The advocates of this principle go so far in some instances as to affirm that all essential or fundamental skills can be satisfactorily acquired through the incidental practice growing out of participation in interesting, constructive activities of the voluntary project type.

The majority of educators have been disinclined to accept this principle as providing adequately for training in essential habits and skills. These have contended that systematic drills could be made interesting and acceptable to the children, while retaining the distinct advantage of covering, in a comprehensive way, those socially valuable skills of which only a comparative few would be directly touched by the incidental practice growing out of any ordinary series of projects. This view received strong corroboration from the evidence furnished by the University of Chicago Elementary School. In this school, for a number of years prior to 1908, major emphasis was given

to supplying the pupils with interesting experiences and materials, with only incidental attention to practice on fundamental skills. In that year Stone tested the sixth-grade pupils on their mastery of arithmetical processes and found them distinctly below the standard of other city schools. Similarly the test of the handwriting of pupils in this school, conducted by Freeman in 1912, showed correspondingly unsatisfactory quality. As a result of these revelations, those in charge of the school introduced brief periods of systematic drill without, however, very materially reducing the attractive activities and content of the curriculum. The pupils engaged willingly in these short, lively drill periods. Subsequent tests showed a marked improvement, which had been secured at no apparent loss in general interest and initiative on the part of the pupils.

Rather impressive evidence on the other side of this question has been more recently furnished by Collings. Being a former student of Professor Kilpatrick, and a firm believer in the complete adequacy of informal school projects as supplying all the pupils' need for educational development, Collings took the opportunity, while superintendent of the schools of McDonald County, Missouri, to carry on an experimental study of the merits of such a plan. Three rural schools were chosen, in one of which the curriculum consisted wholly of informal project activities with no requirements whatever in the line of specific drill, the teacher relying upon the willingness of the pupils to practice voluntarily such skills as they found necessary in order to complete satisfactorily the undertakings growing out of their projects. As a basis of comparison, the other two schools, similar in environment and character of pupils, pursued a regular program of studies with such provision for formal drill as is usually to be found in rural-school programs. The experiment covered a period

of four years. Standard tests were then used to determine the relative merits of the two plans as shown by results achieved. In the matter of fundamental skills, such as spelling, writing, and arithmetic, a clear advantage was shown for the incidental practice over the formal drill. While this single experiment hardly justifies any sweeping conclusions, it is a challenge to further experiment along similar lines. If these findings should be corroborated by further experimentation under conditions which are capable of duplication in the public schools, there should follow a radical reorganization of the curriculum, with a new emphasis upon pupil-freedom and initiative in the choice of activities.

The teacher should not lose sight of the fact, however, that the essential principles of learning by which habits are built and skill acquired remain the same, whether the plan for securing practice is through specific drill or is incidental to voluntary projects. The chief difference concerns the method by which the learning-activity is stimulated and practice motivated. The progressive teacher will encourage pupil initiative in every profitable way with a view to having the learner not only meet situations in which the need for skills will be revealed, but undertake voluntarily their attainment. In this way the remaining need for specific and systematic drill will be reduced to the minimum, and made easily capable of effective motivation.

5. *Applications to school subjects*

Characteristic learning-activity for fundamental subjects. Such school subjects as writing, spelling, reading, and arithmetic are fundamental in the sense that they provide the basic skills upon which more advanced and more differentiated work must build, but the fact that they consist

predominantly of skills means that they are essentially similar in the matter of the type of learning-activity required for their mastery. In order to illustrate how the principles of habit-building apply uniformly to the learning of these subjects, and to point out wherein these principles are frequently violated, the most familiar school subjects are briefly discussed in the following sections.

Spelling. The technique of *teaching* spelling has been developed only within the last two decades. Spelling had been, of course, a familiar school subject for generations but the teacher's activity consisted in *testing* spelling. The pupil learned his spelling lesson in whatever way he chose, and the modes of attack which were to be observed during the study-period, just prior to the spelling time, were various, and often vigorous or even vociferous. Poor spellers were admonished to study harder, but practically no attempt was made to discover the particular causes of failure, or to guide the learning process in such a way as to prevent habitual misspelling.

The need for spelling-ability is connected almost wholly with written work. Consequently, the learning problem is that of making automatic and reliable a specific motor-response. An analysis of the difficulties of poor spellers usually reveals the fact that the most frequent fault in teaching has been in expecting correct practice before a clear guiding image has been established. Without such an image the pupil has no sense of error in misspelling the word. The image at first is usually visual or auditory, although it may be motor, and in all cases a motor image should gradually be established. Concerning this fact, Tidyman says:[1]

The part that motor images play in learning spelling is a significant one. When the series of movements for each word has become

[1] From *The Teaching of Spelling.* Copyright, 1919, by World Book Company, Yonkers-on-Hudson, New York.

completely established through frequent use, as in the writing of common words, we no longer need to think of individual letters as we did in the original learning. One nervous impulse is sufficient for the whole word. The thought of the word or of wanting to spell the word sets the machinery in motion, and the word, as we say, spells itself. It is through the service of motor images that spelling is finally made automatic. Motor imagery aids also in forming clearer visual and auditory images, in the way that expression strengthens impression. In writing, the eye, by following the point of the pen, gets a detailed and accurate impression of the word each time the word is repeated. Finally, motor images serve as additional bonds of association in the learning of words.

In 1919, Ernest Horn prepared a contribution for the *Eighteenth Yearbook of the National Society for the Study of Education* on "Principles of Methods in Teaching Spelling as Derived from Scientific Investigations." The quotation below, on "How to Learn to Spell a Word," is from his paper.

1. The first step in learning to spell a word is to pronounce it correctly. When you are certain that you know how the word is pronounced, pronounce it, enunciating each syllable distinctly and looking closely at each syllable as you say it.
2. Close your eyes and try to recall how the word looks, syllable by syllable, as you pronounce it in a whisper. In pronouncing the word be sure to enunciate the syllables carefully.
3. Open your eyes to make sure that you were able to recall the correct spelling.
4. Look at the word again, enunciating the syllables distinctly.
5. Recall again, with closed eyes, how the word looked.
6. Check again with the correct form. This recall as in 2 and 5 should be repeated at least three times, and oftener if you have difficulty in recalling the correct form of the word.
7. When you feel sure that you have learned the word, write it without looking at the book, and then check with the correct form.
8. Repeat this two or more times without looking either at the book or at your previous attempts.
9. If you miss the word on either of these trials, you should

copy it in your spelling notebook, since it probably is especially difficult for you.

In the above instructions note what careful provisions are made for ensuring a clear and accurate image of the word, and for safeguarding against errors in the early stages of practice. Most students will recognize the sharp contrast between this plan of using the recitation time for *teaching pupils how to learn to spell*, and the traditional use of that period. Space will not permit detailed application of the remaining principles of habit-building to this subject but the thoughtful teacher will usually have no great difficulty in directing practice, if only the common stumbling-block has been avoided by seeing that the beginning is accurately and safely made. Very complete and valuable assistance on all phases of this subject will be found in Tidyman's *The Teaching of Spelling*, to which reference has previously been made.

Handwriting. If we attempt to determine the one principle of habit-building most frequently and most flagrantly violated in connection with handwriting, we will find a different situation from that in spelling. The difficulty which interferes with improvement in writing is not predominantly the lack of a good initial pattern or image, for most poor writers know how good writing should look and can usually write much better on a special test than they habitually do. The obvious reason for this is to be found in the violation of the principle of attentive practice.

Paradoxical as it may sound from the standpoint of acquiring skill, the statement is probably true that most children would write better if they wrote less. The quality of the child's habitual writing is the result of *all the writing* which he does. The problem, then, is one involving not only the programmed writing period, but also the written work done at other times. The latter may be so extensive

in quantity and so poor in quality as to counteract the potential benefits of the former period. From the studies of handwriting carried on by Freeman, it is clear that fifteen minutes a day of specific practice is sufficient for bringing and keeping the quality of writing up to a satisfactory standard for pupils of the grade and maturity concerned, provided the pupils themselves are interested in improving their writing. In the case of pupils without genuine desire for improvement, wandering attention is responsible for the familiar series of gradually deteriorating lines of exercises even during the writing lesson, followed by worse scrawls in other written work.

As a means of supplying the motivation needed to inspire continuously attentive effort in writing, probably the greatest help has come from the standard writing scales. By reference to one of these the pupil can determine for himself how far he is short of the standard for his grade, and the extent of his own improvement from day to day. This challenge to a self-directed campaign of improvement often has the appeal of a game, and when tactfully inaugurated may be made extremely effective in securing better habitual writing. Another plan that is almost always highly successful in this regard is that of having the pupil "contract" for the quality of all his written work during each month. At the beginning of the month he writes a sample page which is to serve as his minimum standard of quality for that time. No written work is to be accepted which is inferior to his contract sample. The pupil may have moments of regretting his self-set standard, but the realization that he must maintain it in all his writings results in steady progress, and usually produces a series of gradually raised standards in the voluntary contracts. Other plans will occur to the resourceful teacher who realizes that good writing is not difficult to secure, if

only consistent coöperation on the part of the pupils is enlisted.

Arithmetic. The subject of arithmetic involves of course much more in its scope than merely habit-building activities, but the importance of these for the other phases of the subject is such as seem to justify especial reference among the applications of this type of learning. Moreover, in this connection, space does not permit more extended discussion than is necessary to point out the steps in the process at which the requirements of effective habit-building are most frequently violated. These violations are largely due to the frequent failure to recognize that the "fundamental processes" of arithmetic, while indispensable to successful problem-solving, are nevertheless distinct from the latter as a learning-activity and must be mastered as automatic responses.

One frequent fault growing directly out of the error just noted is that of confusing the initial pattern or image of the process which is to be practiced by the intrusion of unnecessary and distracting details or explanations. Thorndike has made clear the fact that such explanations are regularly forgotten by the pupil in struggling with the process, and that they should be postponed until after the habit is established, if needed at all. In his *Psychology of Arithmetic*[1] (p. 116) he says:

> The fact was that the pupil learned to compute correctly *irrespective* of the deductive explanations. They were only an added burden. . . . The general deductive theory of arithmetic should not be learned only to be forgotten. Much of it should, by most pupils, not be learned at all. What is learned should be learned much later than now, as a synthesis and rationale of habits, not as their creator.

The objection to theoretical explanations while intro-

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ducing "carrying," "inverting," or other processes is not merely in the extra burden which they entail at that time, but in the way they are likely to prevent a clear-cut image of the precise thing to be practiced, which is not an explanation but an activity. This does not mean any neglect of motivating practice on the process by having the pupil feel strongly its need — the more fully this is done the better — but it does mean that the pupil, as soon as he recognizes the need and is mentally set for the activity is entitled to a distinct pattern, unencumbered by any detail which is not an essential part of the exact bond which is to be practiced.

A second point which deserves mention is the fact that there is frequently a lack of adequate provision for preventing errors, especially in the early stages of learning habit-responses in arithmetic. When one considers, for example, how many combinations there are to be learned, with so few distinguishing characteristics either in appearance or content to set one off from another, one can understand how the beginner finds difficulty in recalling the correct combination-response when confronted with a stimulus of two numbers. The teacher, however, too frequently thinks that the fact that "we had that yesterday" is sufficient justification for demanding a response for which no trustworthy image has survived. In consequence the pupil begins to guess, thereby setting up wrong associations. To prevent the harm done in this way, some would go to the other extreme and have tables of combinations always available for the pupil's use when he is uncertain, trusting that the responses will be learned incidentally in this way, just as many telephone numbers are learned without conscious effort. Neither results nor logic seem to justify this extreme plan, but such renewing of the image for a few days just before requiring practice

on it will not only be good insurance, but will speed up progress as well.

One other matter that should be stressed before leaving this subject is the need of properly distributing practice. The temptation is strong to push quickly for a certain standard of skill on one topic, so as to be free to turn to the next one. Experiments have proved this unwise, both for immediate and for permanent results. Both Brown and Kirby in their investigations showed the value of the short period of intensive practice — five minutes or even less, if consistently followed up. Such practice can be most effectively directed by using the scientifically prepared materials designed for that purpose. In this way the main part of the recitation period can be utilized for more interesting applications, and for teaching new material.

Reading. The subject of reading is so broad that an adequate discussion of the basic habits involved would lead too far for this volume. In view of the fact, however, that reading, especially silent reading, includes the skills upon which almost all educational achievement depends, this chapter should not be closed without calling attention to the fact that handicaps and deficiencies in reading-ability are very largely due to the omission or distortion of the fundamental habits which should be properly acquired in the early stages of learning to read. Very many teachers seem to have the idea that the vague something known as "learning to read" will somehow take care of itself sooner or later, if only the manual or text is followed in a general way. They seem not to realize clearly that reading is a composite skill which includes such habits as word-recognition, phonetic-recognition, phrase-recognition, eye-span, rhythmic eye-movement, and other forms of response which must function smoothly and correctly if proper progress is to be made. To such teachers, a pupil's shortcomings in

reading constitute almost as indefinite a difficulty as vague "engine trouble" is to many drivers. Like a skilled mechanic, the teacher should learn to diagnose quickly the precise weakness which is interfering with progress. When the point of failure is thus located, it is usually possible, through applying the principles of habit-building, to correct without great difficulty the inadequate response. Such definite and complete assistance in this diagnosis is now available, through the work of Gray, Judd, Buswell, Gates, and others, supplemented by the excellent recent textbooks which deal with the teaching of reading, that no teacher need be unfamiliar with the necessary information.

No one should get the impression that such analysis of difficulties and alertness for defective habits in reading need make the work of the class more formal or less interesting. Quite the reverse should be true, for somewhat the same reason that motoring is more enjoyable when careful attention to mechanical details prevents annoyance and delay. The abundance of interesting reading material almost everywhere available for children makes easy the motivation of daily hours of intense, attentive practice to an extent not attainable in any other subject. The teacher who carefully plans to have this practice follow lines which will establish the habits essential to rapid effective reading, and at the same time to forestall the intrusion of clumsy and wasteful practices, is performing a service of almost inestimable value for the later educational progress of the pupil.

Summary. The fundamental skills and habits, which include not only the so-called tools of learning but the basic part of almost every phase of social activity as well, are mastered through a typical form of learning procedure. The economy, the accuracy, and the permanency with which these automatic responses are acquired depend upon having

this typical learning-activity function normally, and without obstruction or confusion. The essential features of such normal progress in habit-building include the initial performance of the activity, followed by correct and attentive repetition of it at appropriate intervals until a satisfactory bond has been established. The completion of this process requires a more or less extended period of practice, and its direction from a favorable inauguration to a satisfactory degree of achievement calls for careful planning and effort on the part of the teacher.

The first responsibility in teaching this type of lesson is in making sure that the learner secures a clear and adequate image by which to guide his practice period. Closely related to this is the necessity of safeguarding against errors, especially in the earlier stages of the practice. The task of maintaining alert attention, in spite of the monotony of repetition, is one that calls for the greatest resourcefulness on the part of the teacher. In this connection the most effective motivation is needed, with wise use of all legitimate sources of interest. The teacher should also determine, in at least a general way, the best distribution of practice periods for both economy and permanence of results. As a means of determining progress and getting reliable guidance in setting requirements, use should be made of standardized tests.

The so-called fundamental subjects are concerned largely with skills and habits, and consequently illustrate peculiar problems and applications of the principles of habit-building. Spelling, for example, presents a special need of care in the matter of the guiding image. Handwriting often suffers through the lack of sufficiently attentive practice. Arithmetic holds so many confusing processes and combinations that there are constant dangers of error in practice, and consequent need for especial care

in preventing these whenever possible. Reading requires such a great number and variety of automatic responses that there is a tendency for teachers to overlook their character and importance. Every phase of reading reacts upon its appropriate group of habits. Accordingly the teacher should be prepared to diagnose particular difficulties in reading, and to correct the shortcoming by appropriate treatment. Inadequate and ineffective habits result only from violating the principles of habit-formation, and treatment must be applied at the point where the wrong steps were taken.

OBSERVATION GUIDE FOR DRILL AND PRACTICE LESSON

A. *Aim.*

1. Was aim definite and clear? (That is, were activities directed toward the mastery of carefully chosen, specific habits or skills?)
2. Was it appropriate for material? (That is, was material proper for drill of this type?)
3. Was aim well-kept and definite progress made?
4. Did pupils accept aim as their purpose, or were temporary "devices" necessary to secure practice?

B. *Lesson procedure.*

1. Approach.
   a. How well were pupils prepared for attentive response?
2. Setting the pattern or guiding image.
   a. What means were used to make clear the precise response or activity to be practiced?
   b. What types of images were employed?
   c. Were any unnecessary or confusing details introduced?
   d. What evidences that all were able to make a correct start in practice?
3. Motivation.
   a. Were pupils led to realize permanent significance of activity practiced?
   b. List the motives employed to hold attention on drill.
   c. Comment on effectiveness of motivation.
      (1) For this lesson.
      (2) For "carrying on" in later practices.

4. Preventing errors.
   a. Enumerate provisions against —
      (1) Fatigue.
      (2) Losing mental pattern.
      (3) Diminishing interest.
   b. Were individual difficulties properly recognized?
5. Distributing practice.
   a. Evidence that practice was, or would be, properly spaced.
   b. Criticize length of practice period.
   c. Note instances of "follow up" drill on responses inaugurated in previous lessons.

C. *Results attained.*
   1. List items in which pupils showed definite learning progress during period.

PROBLEMS AND EXERCISES

1. Choose any simple game involving skill, and show how the child attempting to learn it must first have a guiding image. What types of image are required in the example chosen?
2. Take the eight subjects most commonly taught in the elementary schools and arrange them in descending order as to emphasize on habits and skill, that is, putting first the subject that is most completely concerned with habits and skill, and so on, in order. How many of these have more than half of their subject matter of this type?
3. What basis should the teacher use for deciding whether an activity should be made automatic or not?
4. Teachers sometimes have their pupils keep a record of progress in the form of an individual learning-curve. In what ways may this be of value?
5. Give an example, from your experience, in which progress toward a particular form of skill was retarded by some attitude which you had acquired. Suggest some means by which this might have been prevented or remedied.
6. Explain why there is usually more need for careful motivation in a lesson involving practice than in any other type of learning.
7. Explain and illustrate the distinction between a mere "device" and genuine motivation in a drill lesson.
8. The statement is made that the most effective practice is self-directed. Show how this could be brought about in connection with mastering some important item of skill in oral or written language.
9. If you were uncertain how long to continue practice on certain processes in arithmetic, how would you proceed to determine this point with reasonable certainty, both from the standpoint of acquiring and retaining an appropriate degree of skill?

10. Assuming that incidental practice is sufficient to achieve necessary skill in certain lines, what advantages does this plan have over the direct drill lesson?
11. Give an example, from your experience, in which you had difficulty in securing a clear image for guiding practice, due to being given unnecessary and confusing details. Show to what extent simplification would have helped you in that case.

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CHAPTER X

THE LESSON FOR APPRECIATION

The common elements in appreciations and attitudes. The reader may have noted in Chapter II the apparently heterogeneous assemblage of learning outcomes which were put into a single group and called appreciations and attitudes. The attempt was made at that time, however, to show that the variety was much more a matter of names than of reality. In spite of the diversity of terms applied, all these outcomes are essentially alike in that they are the result of learning-activities in which the feeling side of the response is predominant. Or, to put it in another way, the distinctions connoted by such terms as appreciations, attitudes, sentiments, prejudices, and tastes are much more due to differences in the objects toward which the feeling is directed than to essential variations in the response itself. Our first problem then, in this connection, is to determine the characteristic nature of the learning-activity from which these arise, so that we may thus have a basis for an appropriate teaching technique which is to direct it toward the development of appreciations and attitudes of the greatest educational value.

1. *Finding a teaching basis for appreciation*

Attempts at teaching often unsuccessful. Every one recognizes the importance of having children develop worthy attitudes, discriminating tastes, and wholesome appreciations, and courses of study always attempt to provide abundant material for that purpose. Notwithstanding the general recognition of the values at stake, though, there is no type of educational result so generally

uncertain of attainment. Knowledge can be taught by the average teacher with reasonable assurance of successful results, provided only that the facts are within the range of the pupil's understanding. The teaching of skills may sometimes take a clumsy and wasteful route, but the essential steps involved are so generally understood that the ultimate arrival at a fair stage of proficiency is merely a matter of sufficient patience and effort. In the field of appreciations, to the contrary, the most earnest teaching effort often produces discouragingly distorted results; in fact, the success in developing genuinely satisfactory appreciations often seems to vary in inverse proportion to the effort expended. The assertion is not infrequently made that if the results in this line could be measured with the same accuracy as is possible with skills and knowledge, the showing would be startling in the frequency with which zero or negative ratings would appear.

Even in the absence of such means of measurement we find sufficiently disturbing evidence within the range of common observation. After years of instruction in literary masterpieces, pupils turn with apparent satisfaction to a type of reading matter quite out of harmony with the tastes and appreciations aimed at by the teacher. Classes in "musical appreciation" do not always succeed in causing their members to turn in disgust from objectionable forms of music, and to give their most eager emotional response to music of a higher level when freedom of choice is unrestricted. Worst of all, creditable marks in civics, or in "morals and manners," are not wholly trustworthy evidence that those receiving them have developed the attitudes and ideals essential to vigorous citizenship and worthy conduct. Such results seem to indicate that vital principles of some kind are being neglected or misunderstood in this field of education.

The cause of difficulties and failure. The reason for the numerous disappointments in the attempts to teach a more desirable kind of emotional response lies in the fact that the form of learning-activity by which appreciations are established is distinctly different from those by which facts and skills are acquired. Traditional teaching procedure was worked out in the days when the mastery of facts and skills constituted practically the entire concern of the schoolmaster, apart from the disciplinary system by which the pupils were held to their tasks. Although his methods were harsh, uninteresting, and not especially effective, even for the narrow range of work attempted, they had two outstanding virtues: first, the school was kept in presentable order, by a more or less obvious system of compulsion, so that it was apparent to all observers that a due respect for authority was being "taught"; and second, the facts and skills of the meager curriculum received sufficient drill and reiteration that any examiner, official or unofficial, could at practically any time satisfy himself that the school was giving its attention to the proper teaching materials. These two features were so popularly regarded as the hall-marks of good teaching, that they have held almost undisputed dominance in classroom procedure down to modern times. In consequence, a schoolroom containing a group of orderly children who say what the teacher wishes them to say, practice what the teacher wishes them to practice, and gladden the teacher's heart later by writing what the teacher wishes written on examination, represents, in the opinion of many teachers, so nearly the ideal situation that they bend their energies toward its realization, with little serious consideration as to how the children really feel toward the material studied. What this may be is implied in the words of the boy who declared, "I had my fingers crossed while I put down

what I knew the teacher wanted written on the literature examination."

As long as material intended to arouse appreciation is taught by methods reminiscent of the days of compulsion and reiteration, and appropriate only to the accumulation of facts for examination, the resultant attitudes and appreciations will be at best disappointing. No well-informed educator will deny that pertinent facts and related habits often have a helpful influence toward developing proper appreciations, but thoughtful teachers have long since realized that the mere teaching of facts and automatic responses was far from sufficient.

Can attitudes and appreciations be taught? The fact that traditional teaching methods so often fail in this regard has led to a rather widespread acceptance of the familiar declaration—"Appreciation is caught, not taught." The error in this clever-sounding statement arises from the assumption that teaching must be only the traditional rehearsing of facts, and from failing to realize that the controlling of the conditions under which appreciation is "caught" is the truest kind of teaching. It is unfortunate that the most extended discussions heretofore published on "The Lesson for Appreciation" have been so largely concerned with teacher-activity, and have given so little attention to an analysis of the mental processes by which learners normally acquire their predominant attitudes. The writer has assumed that this latter procedure is the correct one, and in the following paragraphs has attempted to show, through materials and examples drawn from the best available sources, the nature of the characteristic learning-activity by which attitudes and standards of appreciation are acquired. Upon such a basis an attempt is then made to outline a technique for teaching this type of lesson.

How are attitudes acquired? One of the most fundamental laws of psychology is that the individual tends to repeat an activity or experience which affords satisfaction, and to avoid that which produces annoyance. If, for example, a child is unfortunate enough to have a series of unpleasant experiences in connection with arithmetic, he tends to acquire an attitude of antipathy toward the subject which may serve as a prejudice for many years. On the other hand, a favorable attitude or a growing appreciation develops out of uniformly satisfying experiences in connection with a particular object or activity. The emotional quality of the reaction may be so intense as to leave a permanent predisposition as the result of a single experience. In general, the force and permanence of an attitude is proportionate to the intensity of the emotional experiences, or *the completeness with which an individual enters into the emotional possibilities of a situation or series of situations.*

The necessity of participation and emotional experience in building up an attitude or appreciation is emphasized and illustrated by Dewey, in his *Democracy and Education*[1] where he says (p. 275):

> A youth who has had repeated experiences of the full meaning of the value of kindliness toward others built into his disposition has a measure of the worth of generous treatment of others. Without this vital appreciation, the duty and virtue of unselfishness impressed upon him by others as a standard remains purely a matter of symbols which he cannot adequately translate into reality.

Transition to imagined experiences. That the emotional participation may be through sympathetic imagination as well as through first-hand experience is shown by Bobbitt who develops in an excellent way the process by

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which social attitudes are acquired. He begins by emphasizing the importance of attitudes in which the individual identifies himself emotionally with the large social group, and then gives a particularly good illustration of the process by which this emotional participation may shift from actual to imagined experiences, the latter of course fashioned from the materials of his real experiences. In his *The Curriculum* (p. 131), he says:

> Let us first ask, How does one develop a genuine *feeling of membership* in a social group? There seems to be but one method and that is, *To think and feel and act with the group as a part of it as it performs its activities and strives to attain its ends.*

After illustrating how this development of attitudes of loyalty and good-will takes place on the part of a college student through emotional participation in the activities of his college, Bobbitt continues:

> A college student may develop a large degree of college spirit, and actually see and in the flesh perform but a very small portion of the common action. Kept away from it by other duties or by enforced absence, he may enter into it all through *participative imagination* as he reads the current happenings in the college paper. During such reading he is lost to actual time and space, and for the moment dwells in the midst of the group-action. As a shadow member of the group he participates in all that is going on. He wishes and wills and hopes and feels and becomes emotionally heated like those actually in the fray, — especially if he can talk to some one about it, and thus actively and socially stir the inner fires. By such means his spirit is warmed and shaped, — his group-attitudes, valuations and sense of solidarity.

Emotional participation or identification necessary. The necessity for full emotional participation — for identifying one's self, either actually or in imagination, with the thing appreciated — is further emphasized by Strayer and Norsworthy, who say in their *How to Teach*[1] (p. 127):

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Still in true appreciation, one does become absorbed in the object of appreciation; he, for the time being, to some extent becomes identified with what he is appreciating. In order to appreciate, this submerging of one's self, this identification is necessary.

The distinction between the vital appreciations built up in this way, and the shallow substitutes which result from a wrong approach is well made in the following lines from Dewey's *Democracy and Education*[1] (p. 274):

In reality, *working* as distinct from *professed* standards depend upon what an individual has himself specifically appreciated to be deeply significant in concrete situations. An individual may have learned that certain characteristics are conventionally esteemed in music; he may be able to converse with some correctness about classical music; he may even honestly believe that these traits constitute his own musical standards. But if in his own past experience, what he has been most accustomed to and most enjoyed is ragtime, his active or working measures of valuation are fixed on the ragtime level.

As Bobbitt points out, this emotional participation is often concerned with groups and activities too remote for actual contact. In this case the participation and identification are imagined, but none the less emotionally vital. The appreciations built up through nature, history, and art, for example, are mainly the result of imagined participation. Even in a real situation, the emotional qualities are largely the product of the individual's imagination which clothes what would otherwise be matter-of-fact details with deep significance for the realization or marring of one's happiness. Dewey emphasizes this in his *Democracy and Education*[1] (p. 276), when he says:

The imagination is the medium of appreciation in every field. The engagement of the imagination is the only thing that makes any activity more than mechanical. Unfortunately it is too

[1] Reprinted by permission of The Macmillan Co., publishers.

customary to identify the imaginative with the imaginary, rather than with the warm and intimate taking-in of the full scope of the situation.

Similarity in various types of appreciation. From the foregoing it is evident that there is a characteristic element always present in the learning-activity by which attitudes and appreciations in any field are acquired. This element is *emotional participation*, either actually or in imagination—*identifying one's self* with the object, the activity, or the belief which is to be appreciated. The way in which this identification in feeling takes place is subject to some variation with the different types of appreciation, and it is worth while to notice the form it normally takes in each case.

The most obvious identification occurs in the appreciation of social situations and qualities. Not only does the enthusiastic spectator prove by his physical reactions that he is identifying himself with his team in their efforts, but the child, absorbed in a thrilling story, demonstrates audibly as well how completely he has identified himself with his hero in his exploits. Emotionally he is, for the time, the heroic Nathan Hale or the adventurous Daniel Boone. It is only by thus *reliving* the hardships of the pioneers, the courageous defiance of the patriots, the sacrifices and determination of the builders of our Nation, that the child can acquire those attitudes and appreciations that constitute the chief justification of American History as a part of the curriculum.

In the intellectual type of appreciation the identification is equally essential, but in this case it is with the *creator* of the thing admired. At the concert, the listener most appreciative is likely to be the one who feels himself trying for the difficult note or executing the intricate runs with the performer, and is pleased if she "helps" him to do it

successfully. As we hear a good speaker, we enjoy the vicarious experience of using better expression than is our custom, and we are predisposed to attempt to continue on the higher plane. The distinction between the form of identification in this and in the social type may be seen in a literary selection, such as *The Man Without a Country*. Social appreciation requires identification with the leading character, and, through suffering with him remorse and penitence, reshapes one's ideals of patriotism. Intellectual appreciation causes one to be identified with the author, choosing with him the details of his plot, enjoying the skillful use of cumulative disappointments, and triumphing with him in the final effect secured. In the schoolroom the teacher puts "models" before the pupils to improve their taste and stimulate them to higher standards, but if the pupil remains an "outsider" and does not, in imagination, make those achievements his own there is no urge toward improvement.

While more difficult to see in the case of aesthetic appreciation, this same identification must occur. It is not merely a poetic figure to say that one becomes moulded by the beauty which he enjoys. The feeling that one is included in the harmony of color, of form, or of tone, and the enjoyment of this unity that holds one in the spell of beauty, are characteristic of genuine aesthetic appreciation. Tastes in this line are improved, as Dewey pointed out, only by genuinely enjoyable experiences in connection with good art or music, and they are probably hindered more than helped by analysis, moralizing, or other intrusions at the moment of enjoyment.

Finding a teaching basis for appreciations. The realization that the development of attitudes and appreciations is dependent upon genuine participation emotionally by the learner, while it raises some urgent problems, never-

theless places this type of teaching upon a much more definite basis than it has usually had. The methods of procedure in the past have regularly been based on one or the other of two simple but radically different theories. The first was the assumption, already noted, that the teaching of facts about the things to be appreciated would somehow awaken the feeling desired. The other theory, taking into account the uncertain results of the information route, insisted that appreciation came through "contagion," and its advocates made much use of emotional expressions, such as "Isn't that beautiful?" and the like. Teaching based on the latter theory was certainly less laborious for the pupils; in some cases it was successful; in most cases the pupils' acquiescence was polite but unimpressive; occasionally the class was amused or bored; but only rarely were the results directly opposite to those intended, as was too often the case under the other plan.

Among the problems which we encounter when we forsake these two theories and attempt to use the more definite basis of pupil-participation are two very practical ones. The first is that of determining the nature and sources of the emotional responses normally put forth by learners of a given maturity, which are available for use in this connection. The other concerns the means by which pupils can be led to accept and emotionalize for themselves the standards of taste and behavior which are socially desirable. Both of these must receive consideration in connection with our attempt to develop a reliable technique for teaching this type of lesson.

Upon what do emotional responses depend? Our search for the sources of emotional reactions leads directly to the instinctive tendencies of the individual. We found in a previous chapter that the instincts are fundamental sources of interest. This is true because interest is a phase of feel-

ing, and the feelings are close reflections of dominant instinctive tendencies. In fact, the most characteristic way in which instinctive drives are revealed is through the pronounced feelings of satisfaction over adequate outlets, and the corresponding emotional resentment at being thwarted. In other words, the sources which we seek must be found in the native emotional life of the child, with its tide of enthusiasms, loyalties, likes and dislikes — capricious, illogical, and crude, to be sure, but waiting to be refined by skillful guidance.

As these instinctive tendencies furnish vital power for the learning process, so they furnish some limitations. The order in which certain appreciative responses may successfully be sought will depend upon the readiness of the instinctive impulse, and the hand of Nature cannot be forced. For example, the attitudes sought through the social sciences may, in most cases, be best acquired during adolescence when the generous social impulses are potent. Many writers on aesthetics declare that sensitiveness to beauty does not properly develop until that time. On the other hand, those predispositions arising from satisfactorily established habits will be most easily acquired in earlier years, when there is strong instinctive faith in the correctness of behavior according to a pattern. The attempt to elicit from children a type of appreciation for which they were not yet ready has brought disappointment and discouragement to many earnest teachers.

The fundamental problem in this type of teaching. The problem which still remains is the most fundamental one which the teacher has to face in this type of lesson. How can the pupils be influenced in such a way as to turn the tide of their emotional life into desirable channels, so that they will thrill in admiration of worthy achievement, or be moved by the recognition of beauty and harmony?

How is this necessary emotional participation and identification to be led to embrace standards of taste and conduct of permanent value. No technique of teaching for this type of lesson can be satisfactory unless it offers some solution for this problem.

The needed hints for our guidance are to be found in what has already been noted regarding the necessity of sharing directly in the experience or indirectly through sympathetic imagination. In other words, the pupils must be given something to do which will either *lead them into an actual situation, normally provocative of the emotional response desired,* or will induce them to create, in imagination, the activities in which they may participate emotionally. Here, as always, *learning comes through self-activity.* The question resolves itself, then, into one of deciding just what creative activity the pupils will be asked to perform as the means of getting them to feel as we wish them to feel.

A familiar and impressive example of the first plan, that of direct physical participation, is furnished in the Boy-Scout program of activities. Through actual assistance rendered in civic duties, through meeting at first-hand the necessity of discipline as a condition of effective coöperative achievement, and through his daily "good turns," the Scout comes naturally to identify himself with the influences favorable to order, useful service, and good citizenship. The success of that organization in developing wholesome attitudes and ideals demonstrates the soundness of their principles, and suggests a type of procedure which the schools can use much more fully than is generally realized.

An interesting report was made in one of the author's classes in regard to a small town, in which a woman of taste and refinement wished to build a modest club-house

for the use of the townspeople as a recreation center. She enlisted the assistance of a group of older schoolgirls in the work of designing and beautifying the hall and grounds surrounding it. These girls, heretofore without aims or ideals in this regard, were thrilled with having something important and constructive to do. Under her skillful but unobtrusive guidance they entered eagerly into discussions as to what was appropriate and in good taste, and took a keen interest in preparing and comparing designs for arranging and decorating various parts. By this time they were asked also to help plan a program of music for the opening evening, such as would be in keeping with the thoughtful care given to the previous arrangements. In the meantime the discussions and activities had been carried into the school, where the person reporting the matter was a teacher. Fortunately the teachers were receptive enough to utilize this active interest, especially in art and music, with results extremely gratifying. Out of the creative activities of that club of girls there grew an appreciation which influenced a sufficient part of the community to culminate that spring in a successful "town beautiful" campaign. This story is given, substantially as reported, not as an unusual occurrence, because all its essential features have been duplicated in a smaller way many times in well-planned projects along similar lines in modern schools, but as an illustration of the way in which appreciations develop almost automatically when pupils are started upon the proper sort of creative activities.

Utilizing imaginative participation. Direct participation in activities such as these is possible, however, in only a part of the field of desirable attitudes and appreciations. Much of history, literature, and art, for example, cannot be given material reality and reënactment in the schoolroom, and can be made to yield an enriching influ-

ence upon appreciations only through the imagination. It is well here to remember Dewey's distinction between "imaginative" and "imaginary," for there is nothing of unreality in a situation which the imagination has clothed with vividness and vital meaning. In fact, the lively, imaginative reliving of the events of a stirring athletic contest, or of a picnic, may have more of reality for the pupil than the prosaic details of the actual schoolroom environment in which he is seated. If teaching is to be effective, it must find means of engaging the pupils in activities, adaptable to the classroom, which induce them to clothe with something of this same vitality the materials of literature and other subjects which are included in the curriculum chiefly for their possible value in shaping attitudes and appreciations.

The imaginative materials which the child may draw upon to create and give color to a situation must come from his previous emotional experiences. The boy who makes *Horatius at the Bridge* live for himself must utilize to the utmost his own past encounters. Lars Porsena is invested with all the despised attributes of the local "bully" and his gang, who have at some time threatened to violate his rights, while he identifies himself in spirit with Horatius and thrills with defiant valor as the invaders advance. Something comparable to this must happen whenever, through sympathetic imagination, the learner gives vitality to any situation. The practical problem in this connection for the teacher is that of determining what emotional experiences the pupils have had which may be recalled, as well as the surest means of accomplishing this recall without encountering other and conflicting influences. Tennyson's *Crossing the Bar*, with all its simplicity and beauty, is nevertheless very difficult to teach because children, as a rule, have not had the necessary emotional

experiences for its adequate appreciation. Specific illustrations of how the problem of securing appropriate participation by the pupils may be met in typical subjects will be given in the latter part of this chapter.

The approach the most important step. All that was said in Chapter VIII regarding the importance of the preliminary "mental set" of the pupils applies with especial force to this type of lesson. States of feeling, or moods, color one's responses to a situation to an extent that is well known. Moreover, these moods have a tendency to persist in their influence for a considerable time, and will counteract any emotional response not in harmony with them. We may have some idealistic fancy which we wish to tell to a friend, but if we find him in cynical, satiric humor we prudently wait until we have safely brought him into a more sympathetic mood before we risk divulging what we hope to have received and appreciated in an idealistic spirit. To use the same prudent care and thoughtful efforts to arouse associations, and to induce a mood favorable to the emotional response sought, is the most important step in the teaching of this type of lesson. With the pupils in a mental set emotionally inclined toward the appreciative response desired, the rest is easy and will almost direct itself. Without an approach which develops an appropriate emotional set, no teacher-activity, however energetically employed, will avail to bring about that sympathetic participation indispensable to the development of outcomes such as we are seeking.

Technique apparently simple. When we attempt to enumerate the steps essential to directing this type of learning, we find an apparent simplicity of procedure. The indispensable steps are only two in number. First the teacher must so manage the preparation that the pupils will recall experiences in harmony with the feeling desired

for this situation — in other words, provide an appropriate mental set. Next the class activities must be so guided that the pupils will participate emotionally in the situation, identifying themselves with a cause or its champions, an author or his characters, an artist or his creations, and remoulding through such activity their attitudes and evaluations. A third step is often advisable — the inauguration of some further line of activity through which the new feeling may find expression and added satisfaction, while at the same time reinforcing the desired response. This last does not always have a necessary place, however, and certainly should not be forced in any moral-drawing fashion. On the other hand, if the spirit of participation in the lesson has been attended with genuine feeling and corresponding satisfaction, there is likely to be a spontaneous expression of desire on the part of the pupils for further reading, creative activity, or other forms of experience along the same line. This offers such an attractive opportunity for guiding the choice of these pursuits, which may range from individual "hobbies" to informal club organizations for service or self-improvement, that the teacher should be prepared to make the most of this privilege. This eagerness for further participation is not only proof of the success of the lesson, but also leads to the permanent establishment of its results.

Although this outline of steps seems simple, there is no type of lesson which calls for greater skill and resourcefulness on the part of the teacher. Its technique can not be reduced to routine or formal rules, for these are deadening, and the lively feelings of children seek always some touch of freshness. Yet their ready sympathies respond quickly to the appeal of any activity, wisely presented, which adapts itself to their emotional experiences. The teacher who sincerely tries to follow the essential steps involved

in this type of lesson usually learns very soon how his own facilities in presentation must be adapted to the experience and equipment of the particular group taught, and thus builds on these principles a practical basis for a successful technique.

2. *Illustrative applications*

Important part in all subjects. Attention has already been called to the fact that every experience has a greater or less element of feeling which affects, favorably or unfavorably, the learning outcomes. The resultant attitudes may in fact be more important than the skill or knowledge toward which the teaching was directed. Kilpatrick has called this the "secondary or concomitant" learning, and has justly emphasized its importance in relation to the real objectives of education. Even in a subject as predominantly mechanical as spelling, one of the most important aims is the development of a "spelling conscience" — an emotionalized personal standard such as will impel the individual to strive for correct spelling at all times and cause the feeling of humiliation over inexcusable lapses. The development of such attitudes are indispensable to satisfactory learning in any subject, and the recognition of this fact by the best teachers has led to their originating special means for providing this emotional element. Familiar examples are "Good English Week," "Red Letter Day Lessons," and class "clubs" for promoting high standards and enthusiasm. The teacher who plans an occasional appreciation lesson in every subject, to arouse a more sympathetic recognition of its values, will find the effort well spent. In fact, such procedure may serve as the best and most permanent form of motivation.

In addition to the part which this type of lesson should have in every subject, there are certain subjects in which

it holds the foremost place. Unless the materials of those subjects are handled with sufficient skill to develop the desired appreciations, they are failing to justify their inclusion in the curriculum. On that account, it may be well to note some illustrative applications of this type of lesson in a few of these subjects.

In literature. The subject which receives the largest allotment of time on account of its possibilities in this respect is literature. If we examine the current methods of teaching literature, however, in the light of the essential characteristics of the learning-activity by which appreciations are developed, we find many discrepancies. The most frequent error is in assuming that the study or rehearsing of detailed facts is especially conducive to enjoyment and appreciation, even when these concern the intimate life of an author. Hosic and Chase[1] have well expressed the truth in this regard:

> Would the teacher lead the class into sympathetic understanding of Bryant's experience as recorded in *To a Waterfowl*, he calls out, not the facts of Bryant's life, but the testimonies of the pupils themselves as to the lonely moments they have known.

This is another way of emphasizing the fact that genuine appreciation in literature requires sympathetic participation, based on the emotional experiences of the one who is to respond. When a selection has made an unusual appeal to a reader, he is often interested in learning something about the author and his other writings. On the other hand, an interesting fact regarding an author may occasionally help to prepare pupils for an appreciative reading of his work, but this is true much less often than teachers apparently assume. A friend of the writer once remarked

[1] From *Brief Guide to the Project Method.* Copyright 1924 by the World Book Co., Yonkers-on-Hudson, New York.

that his teacher of English literature had introduced so many details concerning the eccentricities, personal scandals, social irregularities, financial difficulties, and similar shortcomings of the writers studied, that he couldn't remember much about what they wrote.

In general it may be said that detailed analysis and information in connection with literature may show impressive scholarship, and may furnish convenient material for discussion, conversation, and examinations, but are frequently an obstacle to the fundamental appreciative responses which should be sought. There must be, of course, sufficient preliminary information acquired to make the situation vital and comprehensible to the learner, who is to relate it to his own emotional life, but the array of facts necessary for this purpose is less than usually assumed. Except where the need of explanatory details is obvious, it is wise to call forth merely a favorable mental set, and then allow the author to make his own appeal. In a more extended selection, where appreciative participation must be renewed and maintained during successive periods, supplementary activities are valuable in inducing the learner to identify himself more closely and continuously with the author and his purposes. Examples of such activities will be found in a later section (Chapter XV) in connection with a discussion of projects as a means of stimulating appreciation.

In art. There is no little confusion as to procedure in teaching what is known as Public School Art, due to the fact that there are included under that designation two distinct types of material and activities. One of these is primarily adapted to the development of skill, and includes drawing and similar manipulations of materials for the purpose of graphic representation. In this phase of the work, the by-product or "concomitant learning" may and

should produce improved standards of taste in materials, arrangement, and workmanship, besides laying a foundation for other appreciations. The immediate activities, however, are directed toward acquiring skill and are properly subjects of the technique of that type of lesson, while the improvement in taste comes through the satisfactions which attend successful work and the zeal to approximately worthy standards.

A quite different teaching problem is presented in the other phase of art, in which pictures or other artistic materials are presented for the purpose of awakening appreciative responses. The viewpoint may now be said to shift to that of the "consumer," if we understand by this expression that the learner is to appropriate and enjoy the achievement of another. This must be done through sharing sympathetically in the artist's emotional experience as revealed by the objective form in which he has embodied it. This enjoyment may perhaps be heightened if one is able to appreciate the technical skill with which the effect has been produced, but the latter phase is not necessary, and probably should not be sought to any great extent from a general group.

The way in which the essential steps of the lesson for appreciation may be exemplified in this kind of art teaching was very well shown in a lesson on *The Gleaners* which the writer observed as taught to a sixth-grade class. At the beginning of the recitation, a good copy of the picture was brought before the class, but covered so that the pupils could not see what it was. Curiosity and interest were at once apparent. The teacher began by saying, "I have here a picture which I wish you to enjoy, but I fear that you are not ready to see it yet, because you are not prepared to appreciate it." By this time all distracting activities were forgotten, and everyone was eager to know why he was

not considered ready to see this mysterious picture. The teacher continued, "The artist who painted this picture spent some time in a flat country which you might call uninteresting. He came to admire very much the peasant people who lived there for their strength, their cheerfulness, their courage, and their contentment. If you were an artist and wished to show cheerfulness and industry at its best, what circumstances whould you choose as a setting for your picture?" Under her questioning and direction of the discussion, the pupils agreed that such qualities appeared to best advantage in the midst of poverty and monotony. They recalled persons whom they had known and admired for cheerful industry under conditions which they felt would have been too discouraging for themselves. Some even suggested that the happiest persons they had known were poor. When the teacher finally asked, "Are you ready now to see how the artist showed these things?", it was a wholly sympathetic class which leaned forward to share in the interpretation. Many recognized the picture at once, but as one pupil said, "It never meant anything to me before." The teacher allowed some minutes for the quiet enjoyment that was apparent, and for the spontaneous comments of pupils who pointed out details which they thought added to the effect. In response to a question, the teacher added some details regarding the painter and his other works, and suggested where more could be learned. The apparent feeling of the class was expressed by the closing remark of one pupil who said, "I know where there is another picture of his, and I'm going to see if that doesn't mean something too."

This illustrative lesson is described because it shows how well a preparatory attitude and sympathetic participation may be secured, even in a difficult situation, where the material is neither novel nor striking in appearance. Un-

der similar circumstances, one too often hears the lesson begin with the stereotyped "Now, children, what do we see in this picture?" when they have no feeling as to what to look for, and consequently remain "outsiders." It is reassuring to observe the ready responses of pupils to the rich possibilities in art appreciation whenever an appropriate and well-planned approach enables them to coöperate with the artist, and, in the light of their own emotional experiences, to find satisfaction in what he has portrayed.

In music. In the field of music, as in art, there are two distinct types of lesson, and frequently the corresponding confusion as to aims in teaching. By far the greater part of our public school music teaching obviously strives for skill, and there is no doubt that, in the case of many children, such training adds to their ability to appreciate better music. Successful "community singing," in large or small groups, adds much to the social spirit of goodwill and enjoyment, and it is regrettable that the efforts to popularize it so often meet with indifferent success. The indirect values from teaching children the elementary mechanics of music and preparing them to participate in "programs," probably appear to a justifiable degree in improved standards of taste and keener enjoyment of good music.

On the other hand, it is doubtful if the possibilities of teaching such appreciation directly are at all generally realized. Since the radio and the phonograph have made accessible to all the music of our greatest artists, every effort should be made to help our children become discriminating and appreciative listeners, able to enjoy the best music and not satisfied with tawdry substitutes. The hope of developing such appreciation lies in more and better-planned "listening lessons," in which the best technique of this type of lesson must be employed.

In view of the fact that the application of the principles

governing the development of appreciation does not seem to be generally understood by teachers who attempt to use phonograph records or demonstration selections for such lessons, some words of caution may be helpful. The field of music has suffered more than any other from the delusion that names, dates, catalogues of compositions, and "conversational equipment" are synonymous with appreciation. In fact, much talk of any kind is to be shunned. An eight-year-old who told of a "music appreciation" lesson at school and added, "The teacher talked so much that I missed some of the music," gave a comment of much educational significance.

On the other hand, enough must be said to produce a sympathetic mood and an atmosphere of expectancy *before* they hear the selection which is to be appreciated. Frequently their own experiences as to the way certain sounds or tone-combinations make them feel may be utilized. All that has previously been said about expecting too much from immature pupils applies, of course, in this field. It is especially important to strive always to develop in them the attitude of "listening for" significant things in music. In general, the teacher should remember that a *sympathetic mood* and *expectant interest* are indispensable features to be secured during the preparatory steps; after that, it is wise to have as little as possible intrude between the hearers and the message of the composer. Make sure that the presentation is as enjoyable as it can be made, but do not press for expressions of appreciation. A thoughtful silence is not only better evidence that finer feelings have been stirred, but it also permits their refining influence to achieve enduring results far better than any demonstrative expression.

Summary. The importance of right attitudes and wholesome appreciations is generally recognized, but attempts

to teach them have not been uniformly successful. The difficulty has usually been in assuming that they could be taught by the same procedure as has been used for knowledge and skills. Teachers must recognize that these emotionalized outcomes are the result of a characteristic learning-activity, and that teaching must conform to its essential features if success is to be assured.

The essential characteristic of this type of response is emotional participation. This may be occasioned by taking a direct part in an experience of an emotional character, or by identifying one's self in sympathy with the emotional experience of another. In order to bring this about the teacher must carefully plan the approach in this type of lesson, so that the learner, out of his previous emotional experiences, shall create a sympathetic mental set and thus be prepared to identify himself in feeling with the vital activity appropriate to the situation.

The technique essential to this type of lesson has important applications in all subjects, and is the predominant feature in the teaching of literature, art, and music. It also plays an extremely vital part in the development of social conduct, a matter which constitutes the major topic of discussion in a later chapter.

OBSERVATION GUIDE FOR LESSON FOR APPRECIATION

A. *Aim.*
   1. What was the precise type of appreciation apparently sought?
   2. Was material appropriate for this aim?
   3. To what extent did children join in this aim as their own purpose?

B. *Lesson Procedure.*
   1. Approach and preparation.
      a. What steps were taken to put pupils in proper mood and mental set for appreciation?
      b. How effectively were past emotional experiences called upon?
      c. Preliminary facts and information.
         (1) Sufficient without unnecessary facts?

(2) Properly subordinated to emotionalize preparation?
(3) Selected and organized to add interest?

2. Presentation.
   a. Kind of pupil-activity called forth.
      (1) How appropriate for this material?
      (2) Did this secure general and genuine emotional participation?
   b. Teaching technique employed.
      (1) Note means to stimulate appreciation.
      (2) Did response justify technique?

C. *Results attained.*
   1. Was improvement in attitudes or appreciations apparent? Give evidence noted.

PROBLEMS AND EXERCISES

1. What need is there of lessons for appreciation in a subject like geometry? Suggest points which should be included in plans for such lessons.
2. What are the arguments for and against the plan of having the pupils select their own program of music, pictures for the schoolroom, and decorative arrangements?
3. If certain of your pupils had just finished reading *The Man Without a Country*, how do you think you could be sure that they had appreciated it without running the risk of getting a forced expression?
4. What do you think are the chief reasons why the teaching of literature so frequently fails to develop improved tastes in reading?
5. Tell what you would consider appropriate emotional participation in each of the following cases: (*a*) Listening to *The Marseillaise*, (*b*) Seeing the painting *Sir Galahad*, (*c*) Reading *The Gettysburg Address*.
6. Comment on the value of such remarks as the following, which have been collected from observation-notes on lessons for appreciation: "Now doesn't this make you all feel like trying to be better workers?" "I'm sure we shall all try to be kind to animals after this." "Doesn't that make you want to be noble?"
7. Explain the distinction between "imaginative" and "imaginary," taking as an example a small boy listening to a detailed account of an important ball game as it is reported over the radio.
8. A famous preacher, upon being asked how long his sermon would be that evening, replied that his real sermon would be only five minutes long, but that it would probably take twenty-five minutes to get his audience ready for it. Would such a division of the recitation time ever be justifiable in a lesson for appreciation? Illustrate.
9. To what extent is it true that an appreciation of humor is dependent

upon one's feeling for what is fitting and what is absurd in social behavior? What plan can you suggest for improving the standards of humor among pupils?

10. What educative value is there in special campaigns, such as "Clean up" Week, Thrift Day, and similar "drives"? Upon what conditions does their efficiency depend?

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CHAPTER XI

THE LESSON FOR MASTERING KNOWLEDGE

A complex type of learning. When we examine the function which knowledge should fulfill in the life of the individual, we begin to realize that the mastery of even a simple item of knowledge implies a somewhat more complex learning procedure than was the case with the two previous types. This is due to the fact that any genuine mastery of facts or principles must include more than merely recalling such information when occasion demands, although this is an essential part of it. There must be included also an ability to use and apply these items of knowledge in an appropriate way — to see enough of the value and significance of these facts, in relation to other facts, that they will have meaning and utility in the solution of problems. Consequently the task of teaching this type of lesson carries with it a twofold responsibility, a truth which teachers have only in recent years begun to realize fully.

Critical examination needed of current practices. In accordance with the plan followed in the two preceding chapters, an attempt will be made to evaluate current practices in the light of the psychological principles governing this type of learning, with a view to determining the most effective technique which may be employed. In this field, we find two distinct methods followed, based upon different theories as to the essential requirements. One procedure may be called the "fact lesson," the other the "thought lesson."

The first assumes, in the words of one of its advocates, that "the best way to teach facts is to teach them." The second maintains that the more effective method must in-

clude using and applying them. The first covers the greater range of information in an allotted time, since the recitation period is primarily devoted to reproducing and explaining the facts previously assigned for study. The second not only limits direct attention to a smaller number of facts, with corresponding need of care in their selection, but also requires a wider use of suplementary sources of information and of thought-provoking situations, including more informal recitation activities. The one has the sanction of tradition, and its simplicity of procedure makes small demands on the teacher. The other has developed only general outlines of procedure, and calls for greater preparation and resourcefulness on the part of the teacher. Both these methods should receive our critical study, and the following section is devoted to an examination of the first in connection with the psychological principles affecting this type of learning followed by another section of this chapter in which the second method is also examined.

1. *The fact lesson and its limitations*

Is the traditional teaching of facts adequate? The traditional procedure in the teaching of knowledge assumed that, if the designated quota of facts could in some way be drilled into the learners, the later use of those facts would follow as a matter of course.

Results have shown that this assumption was unsound, in two important particulars. First, the facts which had apparently been so well learned in the classroom had a way of fading out, and the demands of a real situation seemed to have too few connections with them to serve as bonds for recall in time of need. Second, even when the needed facts were recalled there was often wanting the requisite facility in using them in a real situation so as to make them function satisfactorily. These shortcomings were often

pointed out in a critical manner by men of affairs, and many attempts were made to explain away the charge that the work of the schools was impractical, and that their graduates were unable to apply such knowledge as they retained in any effective manner. The real explanation is to be found in the superficial way in which the learning usually took place.

Conditions affecting permanence of knowledge. Among the factors which affect the permanence of retention of any particular item of knowledge, one which has been pretty clearly established is that it is a decided advantage, while learning the material, to have a definite purpose and plan for using it, and to learn it accordingly. For example, Gates reports, in his *Psychology for Students of Education*[1] (p. 270–71), an investigation dealing with two methods of learning, in one of which the learners merely read and reread the material, while in the other the learners definitely practiced trying to recite the material just as they would expect to do in a class recitation. The advantage was clearly in favor of the latter method, either for immediate recall, or after a lapse of four hours. Gates states the general principle involved as follows:

> The first guiding principle, then, is to consider the situation which life will present, and so arrange the circumstances of learning that the pupil will be practiced in making those reactions which life will demand. Do not expect the proper response to appear as the result of incidental training.

Some of the other conditions which have bearing on the permanence of retention of facts are matters of such general observation, that reference to them may serve as a very helpful introduction to a more careful examination of the psychological principles involved. For example,

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the most abiding permanence attaches to knowledge which one has discovered for himself in connection with some of his vital interests. Such facts are usually born of an urgent need and bear an added importance from personal achievement. These may range from the thrilling discovery in childhood of a way to make a top spin, or how to tell when fudge has been cooked long enough, up to the treasured maxims of the successful leader in industry or politics, gained, as he will tell you, in the School of Hard Knocks. A recognition of the superior value and permanence of information acquired in this way led to the development of the laboratory method of teaching science. By this means the student is set to rediscovering for himself facts of science which he might much more quickly get from a textbook, but which would then lack the enduring values desired.

Knowledge made enduring by application. Somewhat less permanent, but still serviceably so, is the information which has not been discovered at first-hand, but which has become one's more or less intimate possession by being put to what is felt to be a valuable use. Facts which thus acquire an enduring character from being applied to real situations, and from being connected in a vital way with matters of permanent interest, constitute the working capital of information for most of us. Out of the hosts of facts which we have at some time learned, we usually retain only those which we have had occasion to use in some significant way, and which have survived through a vitality borrowed from the permanent personal interests served by them.

Still other information is of the fleeting type, which has never been given mental anchorage through association with vital needs and interests of the learner. Its temporary character has been aptly indicated by the term "deciduous

information." The retention of the facts in this group may be as short-lived as the minute or two we usually hold a telephone number while making a call, or the slightly longer interval from study period to the "end of the recitation." Fragments are retained until final examinations, but after that the shrinkage is usually rapid until only mere traces remain as reminiscences. It is in this class that we are compelled to list the facts taught in the traditional type of recitation where the textbook question-and-answer plan prevails. Not only are the results of such learning unreliable when a real need for knowledge arises later, but the learner has had no preparation for using the facts intelligently even if he has them in mind.

The foregoing description of the effects of various conditions of learning upon the permanence of retention is roughly accurate, but should be supplemented by the more scientific principles of psychology before being made a basis for a teaching technique. Accordingly we shall now look for the psychological explanation of the general facts we have noted.

Psychological basis of learning and recall of information. While remembering that the ability to recall information does not constitute full mastery of it in the sense set forth at the beginning of this chapter, we must nevertheless realize that such recall is a basic part, and that a satisfactory technique of teaching information must make adequate provision for securing it. Accordingly, the psychological principles governing recall must be given primary consideration. This is another way of saying that we are concerned with the question as to how associations of sufficient strength, character, and number may be established in the process of learning, since it is upon these that recall depends.

When we begin to investigate the findings of psycholo-

gists with regard to the conditions affecting the strength of an associative bond, we discover at least three factors playing a direct part, which Woodworth calls the "factors of advantage." These are the *recency*, the *intensity*, and the *frequency* of the learning-response. Any consideration of the first of these would suggest that the learning of any facts should precede as closely as possible the occasion upon which actual use is to be made of them, so that the associations will still be fresh and favorable to full recall. Except in this general way this factor is not subject to control, and may be disregarded in a teaching technique which aims at permanent mastery of information. The other two factors are both largely subject to control and have vital bearing on the procedure to be followed in teaching.

The intensity of the mental response by which associations or fact-relationships are learned is a factor of extreme importance. All of us can recall occasions on which certain events and related facts were so burned into our consciousness by the intensity of a single experience that we can never forget them. The intensity of a response is determined partly by the vividness of the stimulus, but mostly by the accompanying emotional state. When one has sought persistently for a much-needed piece of information, the thrill of exultation at its final discovery tends to stamp in the associated circumstances in an enduring manner, comparable to those we retain from moments of unusual fear, sorrow, joy, or other emotional states. While it is neither possible nor desirable that the classroom be the scene of extreme emotional experience, we can nevertheless develop there the keen interest, the expectant eagerness to discover or to apply facts and principles, and the general attitudes favorable to animated participation in the investigation of the accuracy of reported information.

Just as a single stroke of the hammer while the iron is hot produces more marked results than many blows on cold metal, so a single learning experience, under favorable conditions of interest, is more effective than many reiterations during periods of comparative indifference.

Whatever is lacking in the intensity of the learning response to fix the associative bonds must be supplied by the greater frequency with which it is made to recur. With sufficient persistence a very uninteresting fact can in this way be ultimately stamped in quite thoroughly, at least as far as a very limited field of associations is concerned. If this recurrence comes normally in connection with frequent use of the knowledge, as, for example, the repeated references to latitude and altitude as affecting climate in geographical studies, it performs a valuable service in mastering information. Under any other circumstances, however, any considerable emphasis upon this factor is to be avoided whenever possible. It consumes time and energy, and tends to make mechanical what should be characterized by *meaning* rather than *form*. In fact, one of the chief weaknesses of the traditional method of "drilling on facts" is that it often develops only mechanical responses, without real meaning or utility in solving actual problems. Moreover, the Law of Effect operates here, as it does in habit-formation, weakening the bonds which are accompanied by a feeling of annoyance, and strengthening those that afford satisfaction. Since the resort to reiteration is usually due to an original lack of interest in the facts to be learned, continued review almost certainly adds to the distaste and weakens the associative bonds which should give vital connections for later use.

The nature and number of associative bonds important. In the preceding section, we examined the factors which influence the strength of associations favorable to recall.

The nature and number of these connections are also important for adequately ensuring recall. However strong an association may be formed in connection with important facts, this is worthless in time of need unless it includes some element in the vital situation which will serve as a stimulus to set off the process of recall. It is a maxim in psychology, emphasized especially by Thorndike, that bonds should be formed, as nearly as possible, in the way in which they will later need to be used. Inasmuch as this ultimate need will grow out of the problems and demands of life activities, it is obvious that the most desirable associations are those that grow out of problem situations, and are consequently of the type which will be most needed. In short, the most valuable kind of associations are those resulting from a thoughtful recognition of relationships, and from a discovery, through application, of the logical uses to which the information may be put.

It should be obvious, also, that the probability of recall is greatly increased by having a number and variety of associations established. One of the outstanding faults of the fact-question type of recitation is in the pitifully narrow and meager associations formed. The instructor must frequently recast the question to suggest the precise terminology of the textbook before response is secured. Such bonds are practically worthless for the unexpected demands of out-of-school situations, and, even for the formal examinations toward which they point, their utility is doubtful unless the wording of the test is reminiscent of the question-answer connections of previous recitations. When facts are given application and put to use in something resembling the normal setting in which they function, they immediately take on from that relationship a rich variety of associations peculiarly adapted to facilitate recall, regardless of the form in which the need may arise.

Training in the use of knowledge. The point already been made that the mastery of knowledge formation must include not only the recall of facts, but proficiency also in using them effectively for the purpose in hand. While this second requirement seems to complicate the problem of teaching, in reality it only reinforces the conclusion toward which the considerations treated in the preceding paragraphs have all pointed. In other words, the type of learning procedure which develops the strongest and most desirable associations for recalling information is precisely the procedure which employs and tends to develop the pupil's facility in using and applying information. Accordingly, in our search for the fundamental principles upon which to base a sound technique of teaching this type of lesson, we come directly to the psychology of thinking and problem-solving.

The prospective teacher should be warned that genuine teaching of this sort demands careful preparation, constructive thinking, and leadership quite beyond the autocratic stolidity which suffices for the traditional hearing of lessons. The latter has been so intrenched by custom that it still holds a dominant place in many schoolrooms. On that account, a rather detailed discussion of the necessary factors for mastering information has been given in order to show how wasteful and ineffective the traditional fact-lesson is for the purpose. It now remains for us to examine carefully the procedure in the thought lesson, and note how effectively it meets the conditions essential to the mastery of knowledge.

2. *The thought or problem-solving lesson*

What does thinking involve? Creative thought takes place only in response to a felt need. When we face a difficulty and a decision must be made, if instinct, imita-

tion, and memory all fail to furnish us satisfactory guidance, then thought must supply the need. In this sense thinking is the process of discovering needed facts or principles through the use of known facts and principles. If certain facts are known, and the search is for a general principle in harmony with them, the thinking is called *inductive*. If, on the other hand, we are concerned with discovering the relationship of a particular fact, in accordance with general principles which can be applied, the thinking is said to be *deductive*. In either case needed information is sought, and this situation constitutes a problem. The characteristic element of a problem, then, is a state of doubt, perplexity, and indecision, leading naturally to an attempt to secure the information for which a need is felt, and which would make possible a satisfactory decision.

How does thinking help master information? The feeling of need which impels to a search for such facts or principles as will furnish the basis for a decision, or guidance for a desired action, supplies a most favorable condition for a lasting impression — that is, it adds the element of *intensity* as a factor of advantage in recall. When the problem is keenly perplexing, the discovery of a solution raises the resultant knowledge to first rank from the standpoint of permanence and utility. Whether the type of thinking is inductive or deductive, that is, whether the needed information is a general principle or a particular fact, the effect is equally advantageous toward strengthening the bonds favorable to recall.

The unusual significance and permanence thus attaching to knowledge acquired through processes of thought by no means constitute the only contribution made in this way. The process of problem-solving, while aiming usually at a single needed item of knowledge, at the same time

gives vitality and value to a number of other items. The reason for this lies in the nature of the process itself. The solution of a problem requires that all available information having apparent bearing on the matter be reviewed, and possible relationships tested with a view to determining how each may contribute to the needed information. In this way many facts, which would otherwise have been retained only for a brief period, are brought sharply into consciousness for a new evaluation and are given associations and connections of the most desirable sort.

Thus every act of thought may be said to weave together a number of facts into a rational pattern so that the whole may be retained more easily than a single fact, whereas the individual facts, had they remained unrelated, would have been lost unless kept alive by an intolerable amount of drill and memorization. The saying, "United we stand, divided we fall," has as much significance psychologically as it has politically. The eight-year-old son of a professor of mathematics, struggling to remember the individual facts of the multiplication table, expressed his wonder as to how his father could possibly remember the host of mathematical facts he seemed always to have ready for use. The lad could not realize that the mass of facts and formulas had been so interrelated by thought and use that one could be reproduced from another, and that the retention of the whole actually required less effort than he was expending in his struggle to maintain his grip upon a few elusive facts of multiplication. The process of thought and problem-solving is the only way by which the learning of facts can be taken out of the weary grind of repetition and mechanical memorizing and made a source of added strength.

The emphasis thus far in this section has been upon the advantages of the thought lesson as an aid to the recall of

information. It seems hardly necessary here to state the obvious fact that it is only through problem-solving that any facility can be developed in the actual use and application of knowledge, the other essential element in its mastery. Preparation for the satisfactory use of knowledge in the solution of everyday problems of adult life can be adequately obtained only through experience in using it in the solution of analogous problems.

Analysis of an act of thought. Any intelligent use of problem-solving as a means to the mastery of knowledge requires a basic understanding of the essential steps involved in the process. Dewey, in his *How We Think*, has given a thorough analysis of an act of thought into its essential parts. His analysis is made the basis of the following discussion, although the terminology has been somewhat modified. The essential steps in the process of solving a problem are the recognition of a difficulty, locating and defining the exact nature of the need, the suggestion of possible solutions, critical examination and tentative selection among these, and final verification of the conclusion. Each of these merits at least a brief examination, preparatory to a discussion of its bearing upon a technique of teaching in this field.

(*a*) **Recognition of a difficulty.** The origin of a problem, and consequently the initial step of thinking, can come only in connection with a feeling of perplexity. As Dewey puts it, "thinking is not a case of spontaneous combustion; it does not occur just on 'general principles.' There is something specific which occasions and evokes it." Unless an individual has a personal sense of mental discomfort, a feeling that his desired avenue of mental activity has been blocked, it is futile to urge him to think. The failure of many so-called problems as assigned in the schoolroom to stimulate real thinking is due to their lack of this vital origin.

They have been excellent problems for those who first encountered them, or whose purposes required their solution, but for the pupils to whom they have been assigned there exists no feeling of need to give them reality. The real problem for children under such circumstances is how to avoid as much as possible of the effort necessary to determine what seems to them some wholly unimportant facts. The procedures followed by pupils in these evasive activities often bear the marks of real thinking, but, as Kipling would say, that is another story. The necessity of having worthwhile problems develop out of situations which appeal to the interests and activities of the pupils constitutes such an important element in this type of lesson that it should receive foremost consideration in the teaching technique.

(*b*) **Defining the need.** The initial state of doubt and perplexity, while an indispensable step in thinking, is largely a matter of feeling, and little progress is made toward a solution until the situation is analyzed and the precise character of the need ascertained. This second step of locating the difficulty and defining the problem shows the direction which remedial measures must take. When an automobile balks on a country road there is usually a prompt recognition of difficulty by the occupants, especially if they have only a limited time in which to reach their destination, but their mental states are likely to remain unprofitably emotional unless steps are taken to ascertain the precise nature of the problem. They must determine whether it is a shortage of gasoline, some minor difficulty which any experienced driver can quickly remedy, or some defect that will require the services of an expert mechanic or of a towing car. A failure to define the problem is responsible for much of the aimless guessing and random "putting down" of figures and data by pupils when confronted by schoolroom problems. This step will regularly include making careful dis-

tinctions between what is known and what is not known regarding the situation, so that thought may be centered upon only the vital need which is to be supplied. In most cases the entire problem will be found to depend upon one or two items of needed data, and when the difficulty is thus accurately located the remainder of the solution is often easy.

(*c*) **Suggesting possible solutions.** As soon as the need is accurately determined, possible solutions usually begin to come to mind at once. Upon the number and variety of these conjectures depends the probability, in most cases, of reaching a really satisfactory solution. These suggested possibilities set the limits within which that act of thought must operate, and the results of thinking can be no better than the ideas out of which the conclusion is fashioned. The stories of important inventions and scientific achievements are usually records of protracted but fruitless thought until finally some novel suggestion adds a new element for investigation and thus makes possible a brilliant conclusion. Provision for fruitful suggestions may even permit shrewd guessing, which most scientific investigators admit plays an important part in their work, if only such guesses are subjected to the critical treatment of the next two steps. Haphazard and unreliable thinking consists in having fantastic and impractical suggestions come to mind, and in being satisfied to "jump to a conclusion" of this sort without further investigation. Certain conjectures of this kind will come along with the rest, and it is desirable that there be an adequate variety to judge among before a conclusion must be drawn.

(*d*) **Critical examination and selection.** The next move is eliminative in character, and seeks to make a rational selection from the offerings suggested in the previous step. Apparent relationships are critically scrutinized, and vital connections sought. The facts supporting each proposal

are evaluated, and their utility estimated on the basis of the present need. This reasoning may be more or less informal, but in even its simplest form it involves a comparison of the various suggestions in the light of the facts and principles which are believed to be valid and pertinent to the situation. The thoroughness and soundness of this step determine to a large degree not only the quality of the conclusion, but also the value of the activity in organizing knowledge for later recall and application. The quality most to be sought in carrying on this step is open-mindedness. Even after a conjecture has been found very attractive, its acceptance should be kept tentative and open to a critical re-examination, whenever new evidence or a conflicting suggestion is offered. Most individuals are inclined to accept the first plausible suggestion, and are reluctant to undertake the labor of critical investigation. This tendency must be taken carefully into account in a teaching technique that aims at developing sound thinking.

(*e*) **Verification.** The final step in the process is in a sense the crucial one, because its verdict may compel an entire revision of what has preceded. In the case of practical problems, verification may be a speedy and simple matter; the tentative solution will either work or it will not. It is this fact that gives a marked advantage to the training which makes wide use of constructive activities and practical experiences. Loose thinking is immediately revealed and penalized through the necessity of continued revision and correction until results are secured that fill the need and permit the activity to go forward. There are many problems, though, even in the world of practical affairs, which can not be verified by a simple try-out procedure of this sort. Problems of business investments, political policies, legal decisions, or medical diagnosis must not be allowed the extended and possibly disastrous period necessary for ex-

perimental testing, if any logical means can be found to verify in advance the conclusions upon which important issues are to be staked.

Although the school can make valuable use of many problems of the practical, self-verifying type, a large proportion of those encountered in the course of study will inevitably be of the second kind, in which verification must be logical rather than strictly experimental. In fact, training in the careful verification of judgments in connection with social problems, and other fields in which the impossibility of first-hand experimentation increases the temptation to fantastic theorizing, constitutes a very important responsibility of the school. Still more, it is one for which the school facilities are especially adapted, in contrast with the advantage possessed by the shop and factory for dealing with problems of the material type. The means by which the school can develop the disposition and ability to apply rigid tests to proposed conclusions accordingly is a matter for careful consideration by the teacher, and will receive attention in the following discussion of technique.

Steps sometimes combined or omitted. The foregoing analysis deals with a "complete act of thought." All the steps as described are regularly taken, whenever a problem arises which requires prolonged or careful thought. Many times, however, thinking is informal or incomplete in character, and some steps may be omitted altogether. For example, a recognition of the exact nature of the difficulty may be a part of the original realization of a need. It may also happen, especially where no considerable issue is at stake, that the first plausible suggestion is adopted and the last two steps omitted entirely. The latter usually occurs when explanations are sought for the mildly puzzling occurrences and objects that are observed. What irrational inferences may be accepted without challenge will be realized

by anyone who will take the trouble to stand near a public exhibition of unusual objects and listen to the popular explanations offered by the spectators as to the sources and uses of the various articles.

In many cases an informal and partial act of thought is all that the situation really requires. Complete and careful thinking consumes both energy and time, and this expenditure is not justified when the nature of the conclusion is less important than the avoidance of delays and interruptions. Dewey, in discussing how far each step should be carried, *How We Think* [1] (Chapter IV), has the following to say:

> Each case has to be dealt with as it arises, on the basis of its importance and of the context in which it occurs. To take too much pains in one case is as foolish — as illogical — as to take too little in another. At one extreme, almost any conclusion that insures prompt and unified action may be better than any long-delayed conclusions; while at the other, decision may have to be postponed for a long period — perhaps for a lifetime. The trained mind is the one that best grasps the degree of observation, forming of ideas, reasoning, and experimental testing required in any special case, and that profits the most, in future thinking, by mistakes made in the past. What is important is that the mind should be sensitive to problems and skilled in methods of attack and solution.

It should be added that there is frequently no division in time between certain steps even in a complete act of thought — that is, one is not completed before the next is begun. When a particularly attractive suggestion arises, verification may be attempted at once without waiting for any comparative evaluation. Some thinkers prefer to carry each suggestion clear through the process before examining the next one. Formality should never be exaggerated nor allowed to hamper the spontaneity and vigor of aggressive thinking. In general, however, the educational values from

[1] D. C. Heath and Co., publishers.

problem-solving will be proportionate to the completeness with which all the steps are carried out, provided only that the problem itself is of sufficient moment from the standpoint of interest and general significance to justify thoroughgoing procedure. At the very least, an adequate number of type-problems should be thoroughly developed in all informational subjects to stand as patterns of organization and, at the same time, to serve in some measure as a preventive influence against the prevalent tendency toward indulging in loose and indolent substitutes for accurate thinking.

3. *The technique of teaching in the thought lesson*

Six steps. The objectives toward which the teaching technique in a lesson of this type should aim are obvious from the analysis of the procedure which the learner follows in arriving at a solution of a problem. Each step, however, is beset with its peculiar difficulties and corresponding responsibilities for the teacher who is intent on guiding the learner toward greater power in independent thought, and saving him from the insidious pitfalls into which immature and careless thinkers are prone to wander. These responsibilities may be conveniently grouped under six headings, as indicated in the following sections. In connection with the discussion of each an attempt will be made to suggest appropriate means whereby the teacher can give the guidance most needed under the circumstances.

(*a*) **Making the problem real.** In a previous section of this chapter, attention was called to the fact that an assigned problem did not thereby become a real problem to the pupil. A real problem, with its characteristic element of perplexity, must originate in the learner's consciousness, and is due to meeting a provocative situation to which a satisfactory response cannot be made until further guidance

is obtained. *The teacher's task, therefore, is not primarily one of presenting problems, but rather of contriving situations.* If the pupils can be led to undertake a line of activity, mental or physical, involving the use of new information, a situation revealing the need of this information will naturally be encountered and the problem of discovering it will thus arise.

Since there is no vital feeling of need unless the lack of information interrupts or in some other way interferes with the pupil's interests, the contriving of a fruitful situation is essentially a question of motivation. The sources of interest as sketched in Chapter VI must be utilized in every adaptable way to open pathways upon which problems will be encountered. Constructive activities are especially prolific in producing problems, and these will receive detailed attention in Chapter XV, dealing with the use of projects. Volunteer investigations, debates, dramatizing, preparation of graphic representations, and similar undertakings involving the compilation, organization, and use of information are all profitable means of enlisting pupil-activity along lines that are certain to bring the learner face-to-face with provocative problems which he will regard as peculiarly his own and attack with corresponding vigor. Various practices discussed in later chapters of this book will be found productive of useful problem situations by the alert teacher.

It should not be understood from the preceding statements that the teacher is not to exercise some selective influence in determining what problems are to receive serious attention. If the proper working relationship exists between teacher and pupils, the latter will usually report the difficulties encountered and their proposed plans for meeting them, so that opportunity is offered for a guiding suggestion as to relative values of problems. When genuine

interest in a subject has been developed, a problem which the teacher feels is an especially profitable one may often be proposed in such a skillful way that the pupils will accept it fully, and proceed with vigor to its solution. Even a small amount of guidance of this sort will usually suffice to keep the activities of the pupils directed into fruitful fields of material without risking the mistake of seeming to dictate. The teacher who never loses sight of the fact that pupil-activity must be the center and origin of genuine problems is not likely to err widely in this regard.

(*b*) **Getting the problem defined.** Attention has already been called to the helpless state of mind which exists when an individual fails to determine the exact character of a perplexing situation. The cause is the tendency of the untrained thinker to consider the entire situation as a vague whole, with no localization of the difficulty. The remedy is an analysis of the situation into its known as distinct from its doubtful elements. An example of how far such an analysis may go toward the solution occurred when the automobile in which a lecturer was being taken to an appointment unexpectedly stopped on a lonely road. The driver knew fairly well how an engine should normally behave, but he was no mechanic, and stood helpless in the presence of that mysterious affliction which he called "engine trouble." His passenger knew nothing of automobile construction, but he was a careful thinker, and did not relish the prospect of walking five miles to the nearest known help, or of waiting indefinitely for other help to come along. So he insisted that the driver explain to him the function of each part of the engine before him. The latter's knowledge was limited indeed, but he started tracing out the various parts and explaining how they should work. While showing where the wires went, he noticed that a terminal had become disconnected. This was reconnected, and a

trial proved that the engine was again in normal running order.

The above incident illustrates fairly well the procedure which the teacher should follow in leading pupils to take stock of a situation and determine just how far their present knowledge will avail toward meeting the need. The missing elements will be found to be much less extensive than had been assumed. This segregation of the known from the unknown elements of the problem can usually be done much more effectively by immature thinkers if they have some formal plan of emphasizing distinctions. The simplest means is to have them write separate lists showing the known and unknown elements. Further analysis of the latter list will usually show that most of these items are dependent on one or two vital points, so that if the latter are established the entire problem will clear up.

Children take an unusual interest and pleasure in this preliminary procedure, perhaps because it is more definite and gives them a more satisfying sense of achievement than their former aimless and spiritless gropings. "Acting out" a problem is another means of helping the pupils visualize the elements of the situation and locate the unknown features. An example of the use of this plan by fifth-grade pupils who were having difficulty with arithmetic problems is described on pages 50 and 53 of the author's *Training for Effective Study*. The interest and progress which attended its use at that time have characterized its application in modified form to other types of problems, according to the reports volunteered by teachers in all grades up to and including the high school.

(*c*) **Stimulating suggestions and inferences.** Although the first suggestion that arises may prove to be the solution, as in the case of the engine trouble, most problems are not of the simple, material type which are susceptible of such

solution. As pointed out before, the probabilities of reaching a really satisfactory solution are greatly increased by having a variety of suggestions for comparative examination. The best means to stimulate conjectures and suggestions as to possible solutions is through a thorough analysis of the situation, similar to the point-by-point inventory which revealed the needed suggestion in the engine problem. As a matter of practice, pupils should be encouraged to be looking out for possible solutions during the process of analyzing the situation and segregating the unknown elements. An analysis carried on in this way will often yield an ample list of suggestions to be investigated, but, if a longer list seems desirable, attention may be called to the activities which led to the problem or to the applications that are to be made of the desired information.

An illustration of how this may work out was observed by the writer while visiting an eighth-grade class during a history recitation. The class had encountered the problem as to why the Missouri Compromise failed to settle permanently the question of slave territory. It was obviously a case where all possible reasons bearing on the matter should be considered. In accordance with a plan agreed upon at the previous recitation, the pupils had looked up the provisions of the Compromise Bill, and had also reviewed the points at issue which made a "compromise" necessary. As a result they brought to class individual lists of inferences which they thought might affect the final conclusion. After these lists were combined, and duplicates eliminated, there was still a general feeling that other possibilities might deserve consideration. Accordingly the teacher proposed that all on one side of the class imagine themselves to be a colony of settlers from Missouri, who had moved with their slaves a short distance westward into the new Territory of Kansas, while the rest were to

be settlers who came from Ohio into the same Territory. After a lively discussion of conflicting viewpoints on rather fundamental social and economic questions, three important conjectures were offered and added by general consent to the previous list.

It would add no small amount of interest to the usual classroom discussions, as well as parallel the methods of scientific investigations, if pupils were encouraged frequently to hazard bold conjectures and guesses as to the possible solutions of certain problems. The only restrictions that need be laid down are, first, the requirement that the conjecture be in harmony with the known elements of the problem, and the further obvious requirement that the suggestion be subjected to the rigid evaluation and verification demanded by a sound procedure in thinking. In this way greater fertility in speculative thought is promoted, and future citizens are either given profitable practice in detecting the fallacies in proposals that deserve rejection, or are prepared to give thoughtful hearing to worthy suggestions in spite of their novelty. The teacher who encourages initiative in this respect will not only be promoting better thinking, but will probably be rewarded by the development of a most salutary spirit of thoughtful interest and inquiry among the pupils in general.

(*d*) **Securing critical and open-minded evaluation.** As suggestions and conjectures are offered, varying degrees of importance will naturally be attached to each by different individuals, and some particular suggestion will usually be especially favored by any one concerned with the problem. In case the problem is mechanical in character this does not matter greatly, since the favorite plan can be tried out and the question of its utility settled, but when the situation is such that the problem must be thought through logically and immediate practical trial is not feasible, the

teacher must help the pupils be on guard against the dangers of undue favoritism of this sort. There is especially a tendency, where a group is working on the same problem, for each individual to champion a particular inference, usually the one suggested by himself, regardless of its logical merit. It is not an uncommon occurrence to see a recitation period almost wholly consumed in arguments over a problem in which the participants are more eager to defend their own original guesses than to join in a sincere effort to determine the truth.

This tendency to allow personal feelings to interfere with clear reasoning is a very human one, and one extremely difficult to counteract. The extent to which adults are influenced by it in their political and social judgments shows what limited achievement in this regard the schools can boast as yet. The responsibility, however, for adding as many recruits as possible to the group of clear thinkers to whom society must look for leadership still rests upon the school, and no effort must be shirked to find better ways of fulfilling it. While it is true that the level of thought possible to any individual is probably set by heredity, it is also true that most people could do much better thinking than they actually do, and that the majority could, with proper training, come to have a more soundly critical attitude toward the proposals of those who aspire to be their leaders.

The fact that the disturbing factor here is a matter of feelings and attitudes points the way to its remedy. Instead of allowing thinking to be perverted by the intrusion of chance prejudices, we should set about helping pupils develop a positive attitude favorable to open-mindedness and impersonal examination of data. Scientists and mathematicians derive no little inspiration from the devotion to truth displayed by the great research leaders in those fields.

The university student, through his admiration for and loyalty to the exacting standards exemplified by those whose lead he follows, may develop an ideal of careful scholarship extremely favorable to impartial judgment. A scholarly devotion to truth for truth's sake may thus come to amount to a prejudice in its favor, counteracting the force of previous prejudices of a partisan character. This indicates at least the direction in which the attitudes of children should be turned. They take a lively interest in the achievements and ideals of such thinkers as Newton, Kepler, Pasteur, and Edison, when presented in an attractive biographical fashion. Herein lies a much neglected opportunity for inspiring ideals of respect for clear thinking and truth-seeking, and in a manner similar to that used for encouraging more martial ideals of patriotic service. In this particular, the problem of teaching is that which was discussed in the previous chapter.

When an attitude reasonably favorable to impartial judgment has been secured, even temporarily, the teacher's work of guiding the investigation is primarily one of helping pupils hold to a program of careful evaluation appropriate to the suggestions under scrutiny. Each inference must be patiently examined, not only in the light of all known facts and principles affecting the situation, but also in relation to the purpose toward which effort was being directed when the problem was encountered. A search for fundamental relationships will frequently enable two or more apparently conflicting inferences to be combined or modified into a new and more satisfactory one. Throughout the process the teacher must not forget that the selection must represent the genuine effort of the pupils and that a crudely worded formulation of their tentative conclusion is vastly better than a most impressive substitute which bears no tool-marks of their struggle.

(*e*) **Preventing confusion and wandering.** Modern educational practice has proved that problem-solving can profitably be introduced much lower in the grades than was formerly considered possible. Second and third-grade pupils can deal successfully with practical problems of considerable detail, and, in fact, pupils who have thus had practice in making practical use of facts show marked superiority in the upper grades in problem-solving. At all times, however, care should be exercised to prevent the confusion and failure which result when pupils undertake problems beyond their experience and maturity. The sense of successful endeavor is needed to make the labor of thinking seem worth while, and to inspire the pupil to continue in a prolonged quest. When a feeling of defeat is added to the burden of effort, it is not strange that the pupil becomes increasingly unwilling to make the attempt. The teacher should see to it that the problems attempted are not so difficult as to contribute to this situation.

Even when the problem is entirely within the scope of the pupil's ability and experience, there will still be frequent cases of confusion and wandering from the point, for children are not born effective thinkers. In such cases the teacher can render valuable help by suggesting safeguards in the way of devices of procedure. The pupil who becomes lost in details may be saved if he is required to restate at every step the exact problem, and what the solution is expected to include. Listing in outline form the results of every step, as taken, prevents many pupils from becoming confused, and it also holds the rattlebrain who is prone to wander off on side issues to the main task in hand. Summarizing occasionally the progress thus far made often clarifies a situation and gives momentum for a good attack on the next step. The last is especially true in mathematical problems. It would hardly be advisable

to require such devices as these permanently, although many trained thinkers use such mechanical helps, but they are often invaluable in preventing failure in situations which demand consecutive thought, and while the pupil is still building for himself a pattern of procedure in problem-solving.

(*f*) **Teaching pupils to verify.** The ease with which tentative solutions of practical or mechanical problems can be verified by actual trial makes them of especial value in demonstrating the importance of the final step in an act of thought. The teacher should introduce such problems frequently for this purpose, and to serve as standards for evaluating other means of verification. Although no other method can be as conclusive as this direct experimental one, the important situations in which it is not practicable make it necessary for the teacher to guide the pupils in using other plans. Next in completeness of verification is the method of applying the tentative solution to a new but similar situation. This is the favorite plan in mathematical problems, where tests and checks are familiar means of verifying results.

The most difficult type of problem to verify, and, unfortunately, an extremely common one in our moral, political, and social life, is that in which the only immediate verification possible is essentially a checking back and retesting of the previous step in the thought process. In its most effective form, this plan assumes that the tentative solution as selected is the correct one, and then proceeds to determine whether the logical consequences of such a conclusion are borne out by the actual facts available. If any facts can be found which do not harmonize with the conclusion adopted, we have a *reductio ad absurdum*, reminiscent of our geometry days, and another solution must be sought.

An illustration of this method occurred in an eighth-grade elementary-science class. The pupils were working on the problem, "Why does fanning cool one?" The suggestions were all quickly discarded except three: Because moving air is cooler; because it keeps one from perspiring; because it evaporates the perspiration. They rejected the first suggestion when they found that fanning a thermometer failed to alter the temperature. After applying all the knowledge available, they chose the third suggestion as the most reasonable. Then they began searching for a means of verifying their conclusion. One pupil thought that, if it were the correct one, it should work as well on the thermometer, and suggested that they put a wet cloth over it and fan it. Another objected that the water itself was cooler and would lower the temperature. Finally they agreed that it would be a fair test to wet a cloth in warm water before putting it around the thermometer bulb, and then see if fanning would lower the temperature below that of the air as then shown by the thermometer. When they did so, the mercury at first rose, but as fanning continued, it sank below its original mark, and the verification was considered complete.

Combining types of lessons for knowledge. The foregoing discussions have distinguished the two types of lesson for acquiring knowledge. Emphasis has been laid upon the superiority of the thought lesson as a type, but in actual practice the most effective procedure is, in a sense, a combination of the two, since the incidental learning resulting from the thought lesson should usually be supplemented by a limited amount of memorizing in order to stamp in more firmly the summarized results of thinking. This drilling on the outstanding features, a sort of retouching the relief points of the thought process, is in no true sense like the page-by-page conning of mate-

rial which characterizes the traditional fact lesson, but it helps greatly in retaining the organized relationships developed in the thought process. In some cases a connection may assume such importance as to merit habit-forming repetition, so that its recall will become automatic.

From the above it should be noted that the best practice does not endeavor to maintain sharp distinctions between the various types of lessons when the situation naturally suggests a many-sided response. In fact, knowledge probably has its most permanent and useful setting when it has a point of anchorage here and there in a well-drilled and habituated form of response, and serves in turn as the rational background for a worthy attitude or appreciation. So, while problem-solving activities are peculiarly advantageous for the mastery of knowledge, the wise teacher will utilize also the helpful effects of other activities. Lesson types have been separated in our discussions for the sake of emphasizing the technique appropriate to each, and because learning responses have ordinarily some predominant phase. In spite, however, of the predominance of one phase, the others exist, and no wise teacher will wholly ignore them as essential elements of a normal mental response.

Many applications in school work. The various lines of school work in which the thought lesson may be utilized to advantage are so numerous that space does not permit of illustration of these applications. Except for one, or at most two, of the strictly mechanical fields of subject-matter, every subject has profitable occasions for its use, either in its typical form or in partial combination with other types. Geography, history, and civics are three subjects which in recent years have been largely redeemed from the traditional question-and-answer form of fact recitation, and have gained richly in interest and practical

value from a wide use of the problem method. Complete and helpful suggestions for its use in such fields will be found among the references listed at the close of this chapter.

Summary. The lesson which aims at the mastery of knowledge must not only make provision for its assured recall when needed, but must also develop ability to use and apply this knowledge in the situations for which it is appropriate. The traditional type of fact lesson provides only for the first of these, and is inferior even in this respect, for it neglects all factors favorable to recall except repetition or frequency of reiteration. Any due consideration for intensity of impression and the establishment of adequate associations favorable to recall, points to the thought lesson as best adapted to fulfill this requirement, along with being the only means of giving training in the effective use of knowledge.

Real thinking occurs only when a problem is encountered, and is an attempt to discover the facts needed for the solution of this problem. A complete act of thought includes five steps — the recognition of a difficulty; the locating and defining of the need; the collecting of suggestions and conjectures as to possible solutions; the critical evaluation of these, and selection of a tentative solution; and the final verification of the conclusion. A satisfactory teaching technique must provide the conditions most favorable to these steps, and safeguard them from the errors which are likely to result in failure. The points which teaching should endeavor to attain in this connection are the following — making the problem real and vital to the child; getting the problem clearly defined; stimulating fertile suggestions and inferences; securing critical and open-minded reasoning; preventing unnecessary confusion and wandering from the point; and teach-

ing the pupils how to verify their conclusions in a sound and adequate manner. While the thought lesson is the most effective means of mastering knowledge, normal situations will usually furnish occasion for drill activities as well as attitude-inspiring responses, and the help of both of these may be enlisted in securing a fuller mastery of knowledge and utilizing all phases of the normal mental response.

OBSERVATION GUIDE FOR THE THOUGHT LESSON

Note. It is very difficult to get satisfactory results from observation of problem-solving lessons, unless there is opportunity for consecutive visits. A really good problem is rarely solved in the same lesson in which it is encountered. At some times, even with very good teachers employing a problem-method of attack, there will be recitations which have many fact-lesson characteristics, and a fair judgment can not be made on a single visit. The use made of the following outline should take these difficulties into consideration.

A. *Aim.*
   1. State what seemed the specific aim, as: development of principles of organization, emphasizing significance and relationship of facts, or mere practice in problem-solving.
   2. Was aim justified by material?
   3. Extent to which pupils recognized and accepted the teacher's aim.

B. *Thought procedure.*
   1. Discovery of problem.
      a. Natural outgrowth of situation?
      b. Share of pupils in discovery.
      c. Extent to which problem seemed real to pupils and aroused active, purposive effort.
   2. Defining the problem.
      a. Did the formulation of problem strive to focus on most essential point?
      b. Were different views discussed to secure most definite statement?
   3. Suggested solutions.
      a. What means were used to stimulate suggestions?
      b. Were any proposed by teacher? Was this necessary?
      c. Was list adequate for thoughtful consideration?
   4. Evaluation and selection

   a. Did evaluation seem to be based on careful investigation of facts? (This may cover several study-periods.)
   b. What means, if any, were taken to keep open-minded attitude?
   c. Evidence of *independent thought* by pupils in making selection.
   d. Were there non-participating members of the group? Apparent reason?
5. Verification.
   a. What was method of verification used?
   b. Pupils' part in testing.
   c. How complete and convincing?

PROBLEMS AND EXERCISES

1. Under what circumstances do you consider it justifiable simply to teach facts, independent of immediate application?
2. Teachers of geography often select certain regions for "type studies," in which many related problems are considered. What are the advantages of such a plan? What points should be carefully considered in making the selection?
3. Give an example, from your own experience, to show that real mastery of information must include the ability to apply it.
4. In what sense is it true that we never think except when we are uncomfortable? How might this condition interfere with thinking?
5. Give examples of problem situations in which: (*a*) a complete act of thought is called for; and (*b*) certain steps are naturally combined or omitted.
6. What are the advantages and disadvantages of the laboratory method of teaching information? Why has it generally been confined to science teaching?
7. From the standpoint of a complete act of thought, what does "jumping to conclusions" signify? What is its relation both to good and to poor thinking?
8. It is implied in the text that open-mindedness is an attitude rather than a method or procedure. Either explain and illustrate this, or offer arguments to disprove it.
9. Name the various attitudes or appreciations which are essential to good thinking, and suggest means of developing them.
10. Take the same eight elementary subjects which were selected in Exercise 2, following Chapter IX, and rearrange them in the order of emphasis on knowledge and thought. Should this arrangement be made the exact reverse of the previous one? Why?
11. What are the advantages of having pupils formulate their own problems for arithmetic, instead of using the book problems?

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PART V

THE TECHNIQUE OF TEACHING

CHAPTER XII

ORGANIZING SUBJECT-MATTER AND PLANNING INSTRUCTION

The practical problems of instruction. In the three preceding chapters, the three fundamental forms of learning-activity were examined in detail, and the corresponding requirements of a teaching technique appropriate to their guidance were outlined. In the succeeding chapters there will be discussed the practical problems of engineering instruction so that the various learning-activities will be adequately stimulated, properly interrelated, and guided progressively toward the attainment of desired objectives. First among these problems is that of materials and subject matter, since these constitute the essential elements in the situation to which the learner must respond and through which his behavior is to be modified. Closely related to this is the question of an advantageous approach to the materials of learning on the part of the pupils, so as to secure the most vigorous and desirable form of response. It is important also that the situation be so controlled that satisfaction will attend the desirable responses, thereby strengthening the bonds, and that annoyance attend the undesirable responses in sufficient degree to hasten their elimination.

Attempts to find the most satisfactory means of solving these and similar problems of instruction have resulted in the development of certain procedures, each having its contribution to make to some phase of the technique of teaching, and many of them possessing characteristics sufficiently unique to receive special names, as the project method, the socialized recitation, individual instruction,

visual education, and other "plans" and "methods." In the following chapters these will be considered in relation to the part which they are able to play in stimulating and guiding learning, and an attempt will be made to point out their individual utility as parts of a well-balanced technique of teaching. It is well to bear in mind from the outset, however, that all learning-activities will follow the typical lines as described in Part III, and that we shall often have occasion to refer to the principles therein enumerated when we attempt a just evaluation of the various special procedures.

The modern view of the curriculum. Before taking up the matter of the organization of subject-matter for purposes of teaching, it is probably wise to have a clear understanding as to what is meant by the terms — subject-matter and materials of instruction. The sense in which these terms will be used can be best understood by reference to the modern view of the curriculum. The latter is no longer regarded merely as the facts and materials contained in textbooks and outlines, even when these are enlarged to include such publications as songbooks, cookbooks, and blueprints. Instead, the curriculum is regarded as the series of activities, mental and physical, in which the child engages and from which he acquires the habits, attitudes, and knowledge essential to the realization of the purposes of education. Correspondingly, subject-matter should be considered as constituting the materials with which the activities are concerned, and which, by their nature, determine to a large degree the character of the activities themselves. In this sense subject-matter may include not merely materials such as are found in oral and printed language, but also objects, activities, industrial and artistic processes, social organizations, and other factors of experience.

It is not within the province of this book to attempt a discussion of the principles of curriculum-building. The basis upon which the materials of instruction should be selected is still a matter of debate among various schools of educational thought, turning largely upon the question as to whether interest or social values should receive foremost consideration, with the related question as to whether the latter should be the immediate social values of childhood or the deferred values of adult life. We can only assume here that a curriculum has been selected which affords adequate opportunity for inaugurating activities possessing both the appeal of interest and worthy social value. The task of organizing subject-matter then becomes that of making the most of the opportunities offered, including the directive control of the materials of experience to which the child is to be introduced.

Faults of logical organization. A frequent error of textbooks and of traditional plans of organization is in assuming that a logical arrangement of subject-matter is the best one for presentation to the learner. The temptation to assume this is particularly strong because, as a matter of fact, the logical organization is the most convenient and useful one — after the material has been learned. During the initial stages of learning, however, nothing is more perplexing or uninteresting than to encounter general principles before concrete experiences and contacts have given them meaning. Few boys would possess their present knowledge of radio if it had been necessary for them first to learn, in logical order, the group of physical principles involved.

Grammars and dictionaries are the most logically organized language books one can find, but they are no longer recommended as beginners' books, even for the study of a foreign language. Logical organization fitted in well

with the traditional fact lesson, and it enabled teacher both to piecemeal the subject into convenient doses and to know when these had all been duly administered. The plan, however, fails to achieve satisfactory results in terms of progress and understanding on the part of pupils. Accordingly, it is giving way in practically all subjects to a kind of organization more in harmony with the normal method of approach on the part of the learner.

Organization favorable to learning. Modern educational practice, in seeking to avoid the mistakes of this traditional method, tries to organize the materials of instruction in such a way as to provide satisfactorily for three essential factors favorable to learning. These are, first, adaptation to learner's experience and ability; second, interest; third, normal associations and function. Fortunately for all purposes, except analysis, these three elements overlap and integrate in many situations.

A proper regard for the first of these will induce us not only to consider the background and maturity of the learner, as we attempt to choose the proper avenue of presentation, but also to select the particular phase of the material most closely related to his immediate experiences. For example, in the study of geography, an attempt should be made, in inaugurating the study of any division or topic, to direct the child's attention toward the materials best suited to his maturity, and also to have the first contacts related as intimately as possible to his available fund of experiences. The study of Holland might be undertaken by pupils of the third grade or by those of the seventh grade, but there should obviously be a distinct difference in the method of approach as well as in the direction of emphasis upon the features studied.

The factor of interest. This is perhaps the most vital of all to be considered, because it is the mainspring, the

driving force, of all aggressive learning-activity. It relates closely with the first factor, because interest is most readily awakened in materials closely related to recent experiences. Many strong currents of interest are always available, and through these a vigorous response may be secured if only the material is properly adapted to connect effectively with some of them.

One teacher found that the textbook arrangement for the study of Africa was awakening no satisfactory response from her class. Accordingly she suggested that they organize an expedition to go to that continent and secure a representative collection of wild animals for a local menagerie. By the time they had planned means of reaching all sections for acquiring their collection, arranged for getting permission from the various governmental centers for exporting their specimens, and discussed the various kinds of cargo ships upon which they might get passage for their possessions, they had completely reorganized the materials of study into a most fascinating arrangement. By that time their interest in the continent had developed to a point where the important features not already covered were easily mastered.

Normal association and function. The third factor derives its force from the fact that abstract or unrelated materials do not call forth the most effective learning-responses. As was pointed out in the previous chapter, any permanent grasp upon knowledge is dependent upon establishing normal associations and bonds best adapted to function in the natural setting in which the need will arise. This is another way of saying that the most effective organization of materials in this sense is from a functional viewpoint. It is from this sort of approach that many boys accumulate an amazing amount of knowledge and skill in connection with such matters as radio, auto-

mobiles, and other mechanical contrivances. Their learning begins with an attempt to understand *how the thing works*, and from that beginning they proceed later to the why and other questions regarding it. The surprising speed which a boy may make in learning of this kind, with only another boy for a teacher, often stands out in marked contrast to the indifferent progress he makes in similar subject-matter under the classroom teacher, and furnishes an impressive argument for organizing materials from the standpoint of action — that is, of the function which they perform in their natural connections and setting. It is in this way that the strongest and most directly useful bonds may be formed in learning new subject-matter, and thus at the same time their establishment may be most easily and most readily accomplished.

A plan of organizing material which includes all of these factors will usually arrange for grouping it in large, significant units. For example, in the teaching of history, instead of having the pupil plod through a chronological array of details, the alert teacher will choose the comprehensive movement of which these are parts, and plan to have the pupils introduced to this at the point which seems most interestingly related to their circle of experiences. It is in this connection that inclusive project-units in geography, history, science, and citizenship constitute extremely valuable means of securing successful organization of material.

Organization implies planning. Any attempt at organizing subject-matter, and thus controlling to a certain extent the conditions under which the pupil meets it, implies some form of planning. The recognition by the teacher that the character of the pupil's response will depend to a considerable degree upon the order, the time, and the setting in which he encounters certain materials will

immediately suggest the need of taking precautions to have the situation as favorable as possible. A similar realization induces the salesman to plan minutely his campaign for an important order, the lawyer to anticipate every probable outcome of a case, and the orator to select his phrases painstakingly with a view to their probable effect upon his hearers. These all know that the preliminary care taken in planning may mean the difference between success and failure.

Every consideration which impels to foresight in these cases applies with equal or greater force to the responsibilities of teaching, yet there is probably no phase of school work toward which teachers in general have been inclined to show so little enthusiasm as toward lesson-planning. The reason for this is probably to be found in the formal character which the procedure usually took and from which it has only recently been evolving.

Traditional lesson-planning too formal. The prevalent system of lesson-planning, during most of the first quarter of the present century, was that devised by the Herbartians. Much credit is due Herbart and his followers for their great contribution to educational practice, especially in the matter of emphasizing the necessity of intelligent planning and attempting to base this upon the psychological laws of learning. The great weakness of their theory, however, was in the assumption that teaching was a building process in which the activity of the teacher was the most important factor. The child was to be moulded through the ideas presented to him, and in consequence a successful *presentation* was most essential.

In the attempt to perfect the method of presentation, the followers of Herbart developed a system of lesson-planning consisting of the famous "Five Formal Steps." Even during the period when this system remained the

prevalent one taught in the normal schools, teachers found it difficult to adapt its rigid outlines to the practical problems of classroom instruction, and discovered also that the interest of the pupils was more apparent when teacher-activity was less punctilious. While the policy of insisting that all teaching and lesson-planning follow the Five Formal Steps was growing in disfavor as a practical procedure, a more scientific psychology began to furnish the basis for the modern theory of education, which recognizes that learning must come through the learner's own activity. With this shift of emphasis, any elaborate methodology of teacher-activity has become more or less discredited. The reaction against formal method has gone so far as to raise in some quarters the question as to whether there should be any definite preliminary lesson-planning at all. It is worth while for us to inquire just what necessary functions lesson-planning should fulfill in the light of modern educational theory and practice.

To what extent is lesson-planning essential? As a partial answer to this question, it is interesting to note the results of an investigation conducted by Dr. Lois Coffey Mossman, in 1922, in regard to present practices relative to lesson-planning. The 1103 teachers from whom she received reports were located in thirty-eight different States, and showed a wide range in years of experience, but were, on the whole, above the average in preparation and probably represented the better type of classroom opinion and practice. Of these, 87.6 per cent had been taught lesson-planning as part of their teacher-training. More than half of that number had been taught to use the five formal steps, but all except 10.9 per cent had later changed to some other type of planning. Although most of them were using a different kind of planning from that which they had been taught, it is significant that 94.6 per

cent stated that they planned regularly. This means that most of those who had not been taught planning, had later found it advisable to work out some means of doing so. Only 1.4 per cent of the entire number questioned the wisdom of teaching prospective teachers to plan lessons, although a number expressed no opinion, and there was a marked tendency to favor informal plans with wide latitude for children's activities. The investigation on the whole furnishes impressive evidence that the best teachers in actual service find lesson-planning essential to satisfactory teaching.

A thoughtful consideration of the question will show why the above conclusion is well founded. The shift in emphasis from teacher-activity to pupil-activity as the center of gravity in the lesson means merely a different kind of planning, rather than any decreased necessity for planning. Although we no longer believe in an elaborate planning of a presentation by the teacher as the important factor in shaping the child's educational growth, we must nevertheless appreciate the importance of controlling the entire situation to which the child responds, since it is only through altering all or part of the situation that responses are modified and learning directed. A well-controlled situation is one in which vigorous activity is stimulated, desirable responses are afforded satisfaction, undesirable responses are attended with annoyance, and factors generally favorable to the chosen type of learning are progressively maintained.

With the problem of providing in advance for a series of such situations, with the elements of control reasonably assured, the question of planning has certainly lost none of its urgency, but has rather taken on a new character which challenges resourcefulness in a much more varied and interesting way.

What should lesson-planning include? The most essential element in the teacher's preparation and planning for a recitation is his attempt, through an analysis of the materials and situation toward which the children's activities are to be directed, to foresee the probable forms which those activities will take, and in the light of that expectation to make all needed preparation for proper guidance of them. Not to make such preparation is a plain shirking of the responsibilities and opportunities of teaching. The pupils look to the teacher for guidance, and when no adequate plan has been made for such guidance beyond a mechanical following of a textbook, they usually reflect in their half-hearted responses a sense of the lack of genuine leadership.

Dr. Mossman, in her excellent study on *Changing Conceptions Relative to the Planning of Lessons*, traces the changes toward a more informal and broadly elastic type of lesson plan. Since modern educational practice requires that the plan be adaptable to the activities which develop during the recitation, she concludes that necessity requires that we confine ourselves to no one form. In her recommendations as to the best means of ensuring adequate preparation, she includes the following (p. 58):

1. Consideration of possible directions toward which activities may be guided.
2. Familiarizing one's self with the details of subject-matter which may be involved in making the chosen activities most worth while.
3. Considering the procedure best suited to engaging in the activity that learning may result. This involves the application of the laws of learning to the proposed activity.

Dr. Mossman recommends, as a modified form of written lesson-plan, a memorandum of the preparation, in-

cluding such details as the teacher feels will be needed, and covering the following points (p. 59):

In essence the memorandum of preparation should contain:

1. *An enumeration of the things one expects will happen, stated in the probable order of happening.* The amount of detail here will vary with experience and with the type of work contemplated.

2. *A memorandum of such details of subject-matter as the convenience of the teacher may find valuable, because they are thus made immediately available.* In many instances no such memoranda are needed. The subject-matter to be used may, however, be somewhat new or organized from a new point of view. In such cases the teacher's efficiency is greatly increased if the memorandum is helpful.

3. *A memorandum of assignments that were agreed upon, of lists of illustrative or constructive material that may be desirable, and of reference that may be useful.* Definiteness of detail on the teacher's part is conducive to definiteness on the part of the children. Adherence to purposes set up needs reinforcement by a type of leadership that takes account of essential details.

The writer's own experience in trying out various types of lesson-plans with student-teachers, with a view to ascertaining what kind of preliminary planning would best secure the preparation on the teacher's part essential to confident leadership in the recitation and at the same time allow desirable initiative from the pupils, is in general accord with Dr. Mossman's findings. It was found that there were occasional situations in which the responses of the pupils took such profitable lines that preliminary outlines as prepared were not needed. In most cases, however, the activities of the pupils needed guiding and their resources needed supplementing in ways which only careful preparation could provide. Very often, when the recitation developments required well-planned guidance, the need was acute and deficiency in this respect was costly, if not disastrous. Even when the circumstances were such that the plan as prepared was not used, the student-

teachers regularly agreed that their direction of the recitation was nevertheless more competent for having planned as they did.

The general outline of lesson-planning which seemed sufficiently adaptable to meet almost all types of recitation development included the consideration of four essential points. These were: (*a*) the aim toward which learning-activity is to be directed; (*b*) the subject-matter and illustrative material to be employed; (*c*) the means of stimulating and guiding class-activity; and (*d*) the tentative assignment or "follow-up" work which is expected to develop out of the recitation. The part which each plays in the daily preparation of the teacher may be made clearer by the following analysis.

(*a*) **Setting an aim for the lesson.** Any intelligent direction of learning-activity implies a projected goal toward which the activities are to lead. The first step in the determination of this aim will be a consideration of the various directions which the pupil-activity might profitably take, and the selection of the one most desirable in the light of the possible situations which may be created. Even in a pronounced form of "free-activity" curriculum, where it is expected that the pupils will choose their own aim, the influence and suggestion of the teacher count for a great deal, however unobtrusively they may be employed, and the most successful teachers keep clearly in mind the aim toward which they expect each situation to point. Under typical school conditions, where a fairly definite curriculum is to be followed, a clearly projected aim is the indispensable first element in daily planning.

The choice of the aim immediately determines the type of lesson procedure to be employed, since the formulation of the aim must be, directly or indirectly, in terms of habits to be established, attitudes and appreciations to be pro-

moted, or knowledge to be acquired. An adequate determination of a working aim, however, cannot be content with such general divisions as these. If the aim is directed toward habit-building, there must be chosen very specifically the particular habit or habits which are to be the goal of the learning-activity. If the aim of the lesson lies in another phase of learning, the precise character of the attitude desired or the knowledge to be mastered must be defined with corresponding clearness. In no other way can the most effective guidance be realized, and by no other means can a definite basis be assured for measuring the success of the recitation procedure. The lack of a clearly conceived goal toward which the class activities should converge is responsible for more vague, time-wasting, and energy-dissipating recitation practice than any other single fault.

(*b*) **Selection of subject-matter and illustrative material.** The materials used constitute the directly controllable factors in the situation, and thus condition to a marked degree the learning-activities which are concerned with them. On that account their selection and evaluation form one of the early considerations in planning a lesson. In the first place they must, of course, be in harmony with the aim chosen. In point of difficulty, interest, and later utility, their selection and arrangement should accord with the principles of organization discussed in the earlier part of this chapter.

In addition to the standard textbook materials which are assumed to be immediately available in the classroom, the prudent teacher will take careful stock of maps, charts, pictures, apparatus, specimens, construction materials, and similar aids to securing lively, well-directed, and effective participation on the part of the entire group. A recitation often loses much of its possible value by the dis-

covery, painfully frequent with inexperienced teachers, and all too much so with many others, that a certain piece of illustrative material is much needed in order to make clear an important feature, and for which no provision has been made. Sometimes it is procured at the cost of considerable delay and loss of continuity. Sometimes the teacher makes the further mistake of lamely trying to describe what should have been provided, and only succeeds in confusing the pupils as to what they had missed. An adequate and well-considered supply of illustrative material should receive careful consideration in lesson-planning, because of its extreme value in furnishing concrete guidance to class activities.

(*c*) **Preparing to guide the recitation activity.** The third element to be considered in planning a lesson involves an attempt to anticipate the possible array of normal activities that may be aroused and utilized in connection with the situation as planned. When a choice of pupil activities has been made, sufficiently elastic and adaptable to admit of reasonable freedom on their part, very careful attention should be given to planning the approach or developing a mind-set favorable to the sort of learning-response desired. The consummation of this must take place in the opening minutes of the recitation period, and upon its success will depend the character of the remaining class-activities. The nature and importance of this phase of teaching were discussed at length in Chapter VIII, so space need be taken here only for renewed emphasis in connection with pointing out its application at this step in planning the lesson.

Both the selection of the kind of activities to be stimulated and the choice of the general lines along which they are to be guided will be determined by the type of lesson indicated in the aim. The lesson procedure must be de-

signed to guide the pupil activities in accordance with the laws of learning appropriate to the outcome desired. At this point, therefore, in the planning, the teacher will determine what applications can be made of the procedure for that special lesson type. The possibilities in these lines were discussed at length in Chapters IX, X, and XI. The characteristic learning-activity of each type in its simplest outlines should soon become so familiar to every teacher that it can be utilized for immediate guidance, whenever a particularly favorable occasion arises in the course of any recitation.

The various means which the teacher may use in guiding the recitation activities should receive consideration during this part of the planning. The nature of these, and the occasions which should determine the use of them, constitute the matter of the following chapter, so a detailed discussion of them is deferred until that time.

(*d*) **Providing for the "follow-up" assignment.** In planning a lesson the teacher should not forget that the recitation must be forward-looking, and not merely concerned with material already assigned. In short, a good recitation should lead to a recognition of related problems yet to be solved quite as much as to a statement of points already completed.

The above statement suggests an important principle which underlies the modern theory of the recitation, namely, that the recitation activity should be concerned primarily with the subsequent study of the pupils. In other words, the recitation should be constantly looking forward toward the immediate use which the pupils are to make of the things learned, or to the further investigations for which it is preparing them. Consequently the next assignment and contract for study, or the practical applications which are to follow, should be definitely planned

before the recitation. Having these in mind throughout the recitation, the teacher will find fitting occasions for guiding the discussion toward the discovery and selection by the pupils of the essential features of such assignment or follow-up work.

The value of an assignment, as a stimulus and guide for further study, depends largely upon these two factors — the planning which makes its development and foundation a natural outgrowth of the entire recitation, and the participation by the pupils in its selection so that the assignment becomes a mutual contract to which the pupils subscribe as a fitting continuation of their own investigations. Adequate attention to the next assignment as part of the daily planning abundantly repays the teacher in the way in which it simplifies subsequent planning. Further discussion of the possibilities of the assignment will be taken up in a later chapter.

A working memorandum of the plan. After the plan has been completed, it is usually wise to have some working memorandum or outline to ensure an advantageous use of the planning. The form which this reminder may take should be that most serviceable to the particular teacher who is to use it. The simplest visible form the writer has ever seen employed was that of a successful teacher whose custom it was to arrange all illustrative material in a consecutive order on her desk, just as she purposed using it. In most cases, however, the memorandum will be more helpful in a written form, of which the lecturing professor's copious notes represent the fullest elaboration.

Until a teacher has had sufficient experience to determine how the written memorandum can safely be abbreviated it is usually wise to have sufficient detail indicated to serve as a safeguard if unexpected and disconcerting developments arise which threaten the success of the lesson.

Many teachers of extended experience continue to use outlines containing at least a hint as to the approach planned, a "high point" sketch of subject-matter, two or three "pivotal" or "key questions," and notes on the intended assignment. When these are later filed away they constitute a valuable record of the work, available for later use and comparison.

Summary. One of the important practical problems of instruction is that of organizing subject-matter and planning the lesson. Modern practice is discarding the traditional organization of subject-matter, with its logical but uninteresting arrangement, for a method of organization more in accord with the natural procedure in learning. This involves due consideration for the experiences and maturity of the learner, the proper appeal to his interest, and a close approach to the natural setting of the subject-matter with its normal life contacts.

The planning of a lesson is primarily an attempt to foresee and control the events and activities that are obviously appropriate to the learning-activity desired. It should begin with the choice of the aim toward which the learning is to be directed, which will fall within the appropriate type of special learning-activity. The more definitely the aim is set, the more effective is the guidance likely to be. Planning also includes a careful choice of subject-matter and of illustrative material. Next it looks to the selection, stimulation, and guidance of pupil-activity in accordance with the aim and the situation as projected. Finally, it should determine in advance the character of the subsequent assignment or follow-up work, in order that the pupils may be guided toward the fullest possible participation in directing their future work.

OBSERVATION GUIDE ON LESSON-PLANNING

A. *Teacher's Aim.*
   1. Was a thoughtfully chosen aim apparent?
   2. How well did aim accord with material?
   3. Did procedure indicate aim clearly kept throughout planning?

B. *Selection and organization of material.*
   1. How successfully were materials organized to provoke interest?
   2. How well adapted was material, as organized, to abilities and experience of pupils?
   3. Use of illustrative materials.
      a. Was adequate, well-chosen supply provided?
      b. At hand when needed, and arranged to economize time?

C. *Lesson procedure.*
   1. Evidence that approach was well-planned.
   2. How definitely did procedure seem to have been planned?
   3. Was plan elastic enough to encourage pupil-initiative?
   4. Was teacher caught unprepared, or did other developments indicate insufficient planning?

D. *Assignment.*
   1. Did assignment show previous planning?
   2. To what extent was assignment an integral part of the lesson and a continuation of its aim?

PROBLEMS AND EXERCISES

1. What relation should exist between the principles of learning and the technique of teaching? What advantages, if any, are there in studying them together?
2. What important principles are neglected by teachers who rely upon a logical organization of subject-matter as a basis for presentation?
3. If the true curriculum is the series of experiences in which the pupils participate, what is the function of the material contained in books and similar sources? How does this view influence the organization of material for instruction?
4. Many beginning teachers feel sure that they can teach, but doubt their ability to make a good lesson-plan. What misconceptions are responsible for this apparent inconsistency?
5. In what ways is preliminary planning essential to good teaching? In the light of these needs, what features should a lesson-plan include?
6. Experienced teachers usually agree that careful planning enables them to teach a lesson more successfully, even when circumstances arise which cause them to change their plan. Explain how this may be true.

7. Show how successful lesson-planning calls for practical, creative imagination.
8. Give arguments for and against the use of any extended memorandum or written plan during a recitation.
9. In the recommended procedure, the teacher is advised, after determining the aim toward which the lesson will be directed, to choose the illustrative material available before deciding upon detailed steps in the lesson. What reasons can you see for this?
10. Show how the lack of a definite aim in the planning may result in a futile and wasted recitation.
11. Explain and illustrate what is meant by "key questions" in a lesson-plan.

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CHAPTER XIII

DIRECTING THE RECITATION

Changing meaning of the word recitation. With the changes in schoolroom practices which have attended the development of modern educational theory, the word *recitation*, as signifying the period of group activity for a class, has become, in a sense, a misnomer. Dr. Mossman, in her study of *Changing Conceptions Relative to the Planning of Lessons*, to which reference has previously been made, has noted this change in the character of the recitation activities, and commented upon it in the following words:

> *The recitation is a time in the school procedure when the children through concrete action seek to achieve certain desirable ends recognized and purposed by the group.* Its characteristic is the social element of concerted action. Its name is unfortunate in that it does not give one a true notion of its function. The term arose through the notion that once obtained that it was a time when the children proved to the teacher that they knew the set task by *re*-citing it. With the present theory of education we need a new term, suggesting the social element of coming together for the purpose of accomplishing an end through combined effort, of checking up on work accomplished, of securing the guidance of the teacher in evaluating what has been done, and of making further plans. It is a time of social selection toward further ends.

The traditional type of recitation in which the chief occurrence is a question-and-answer dissection of arbitrarily assigned material is still such a familiar one that it is perhaps wise to note at the outset some of its vital shortcomings. In this way the ground may be cleared for a constructive discussion of the procedure which is rapidly taking the place of the traditional recitation with that

formal rehashing of material from which the name was derived.

Some common faults in directing the recitation. The chief faults in the conducting of the recitation, which were either inherent in the traditional type of recitation or developed naturally out of it, and which have persisted too generally in practice down to the present day, are three in number. The first of these is a misplaced emphasis on the facts of subject-matter as such. The apparent faith in the virtue of repeating facts regardless of any vital, constructive use-association for them, is based on an unsound theory as to the way in which knowledge is mastered. The errors of practice based on this theory were sufficiently pointed out in Chapter XI. There are, however, two other faults which grew out of the traditional method of conducting recitations which are still to be observed, and which handicap seriously the development of a more modern type of recitation.

A second fault in recitation conduct is the custom of most teachers to be too dominantly active in the recitation.

The writer has called attention to this fault in a previous book, and he can probably do no better at this time than to quote the following from his *Training for Effective Study:*

> The teacher, from her clear knowledge of the material under discussion, has decided what should be said about it. Accordingly the pupil's halting statements as to what he learned during the study period merely furnish a starting-place for a more or less extended cross-examination until that pupil or some other pupil is cornered into saying what the teacher wishes said about the topic.
>
> The process frequently consumes much time, but her success in getting certain words said affords the teacher a pleasurable feeling of triumph. If, however, she does not succeed, and is

compelled to say herself the words she wishes said, she is correspondingly humiliated, and in her annoyance may say other things not originally planned. Pupils soon discover that a smattering familiarity with the assigned work and skill in divining the teacher's wishes stand them in better stead than attempts to make definite, independent judgments regarding the material studied. The natural result is the "Is that what you want?" type of recitation, instead of initiative and independence. Other teachers, in their effort to "enrich" the recitation, offer a profusion of additional information, comments, and illustrations. The pupils usually find this entertaining, and much of it may have real value, but there is always danger that the time consumed could be better used in other activity. The standard by which the value of recitation procedure must be judged does not consist in the number of facts presented, but in the increased power developed in the pupils.

The third of the common faults in recitation procedure which should be pointed out in this connection is the most pernicious of them all. This is the inquisitorial manner of questioning which puts the pupil on the defensive, and thereby renders almost impossible the free contribution and discussion by all which should characterize a successful recitation. To say that the pupil is on the defensive means that he is primarily concerned with preventing the teacher from discovering the extent of his ignorance in regard to the assigned work. As the teacher proceeds to probe in various quarters for evidence as to the incompleteness of preparation, the pupils are inclined to resort to various subterfuges in order to give a more favorable impression than is deserved. Surreptitious glances at notes or at a strategically located textbook, ambiguously worded replies, questions intended to lead inquiry away from embarrassing topics, or ostentatiously volunteered answers to known questions in the hope of being passed by on the rest — these are not unfamiliar defensive tactics in the inquisitorial type of recitation.

Whatever form these defensive practices may take they are evidence of a fundamentally wrong attitude. They should be regarded in this light, and instead of merely matching wits against the pupils in an endeavor to detect and defeat each new subterfuge, the teacher should rather attempt through them to discover wherein the method of the recitation is responsible for the defensive or evasive attitude. Such evidence means that the pupils regard themselves as working for a taskmaster, and do not consider that they have any coöperative interest in the success of the recitation. Accordingly, the tendency to feel justified in "slowing up the production," and even to adopt such means of mild sabotage as those mentioned, seems to them a legitimate defence against the impositions of the teacher. Under the commonly used methods of the recitation this attitude is often prevalent in the elementary school, becomes more widespread in the high school, and is well-nigh universal among college undergraduates. To find means whereby this attitude may be prevented or corrected is one of the crucial responsibilities in directing the recitation, and its consideration will underlie much of the subsequent discussions in this chapter.

What are the real functions of the recitation? When one remembers that the total daily recitation time for any pupil is at most only a small part of the entire day, but that it constitutes practically the only opportunity for exerting a guiding influence over his voluntary social and recreational activities, as well as his intervening study hours, one can realize that there is need of a broadened conception of the functions of the recitation. In fact, practically every responsibility of the school for educational direction is affected by the recitation procedure. It furnishes the setting and occasion for stimulating, controlling, and maintaining the development of those ad-

justments which are essentially educative. It is in the recitation that interest is to be stimulated, a favorable mind-set induced, an appropriate situation arranged, the proper type of learning-activity guided and maintained, wholesome social responsibility and participation developed, future work planned, and methods of independent study fostered.

This is another way of saying that most of the principles set forth in this volume find their center of action in the recitation period. Naturally, therefore, many references will be made in this chapter to topics discussed elsewhere, but which have their fullest significance in teaching only when integrated and coördinated as elements of the recitation. There are, moreover, certain features of technique appropriate to a well-directed recitation which give its study an importance beyond that of a mere assembli[illegible] point of known principles, valuable as that in itself may [illegible]

Three aspects of the recitation. The following dis[illegible] sion of the functions and characteristics of the recit[illegible] follows the plan of dividing the subject into three pha[illegible] the teacher's part, the pupil's part, and the socialize[illegible] itation — the last representing the form in whi[illegible] best opportunity is afforded for coöperative effort [illegible] the realization of the most desirable ends. The [illegible] following this one continues the discussion upon [illegible] which are really a part of the responsibilities of [illegible] tation. The apparent division is solely for clea[illegible]d emphasis in presenting details, and a reiterat[illegible]ne fact that the planning and directing of study l[illegible]ri-marily among the functions of the recitation w[illegible]und at the opening of the next chapter.

1. *The teacher's part in the recitat[illegible]*

The part which the teacher should play in [illegible]tation is best indicated by the terms, stimulation [illegible]dance.

This should imply a recognition by the teacher that learning is the result of the pupil's own activity, and that the teacher's activity must be evaluated in terms of pupil performance. On the other hand, the pupil performance may be lifeless, misdirected, and futile, as far as desirable outcomes are concerned, unless stimulating situations are encountered, investigations wisely apportioned and guided, discussions carefully directed, and achievements justly d and appreciated. To bring these conditions to should be the constant aim of the teacher, and an is of what is implied in such an achievement will the part in the recitation which belongs to the teacher.

Setting the si and guiding the approach. ospective t ardly be reminded too often e char onse which the learner makes by the nature of the situation s, and the particular mind-set with aches it. Both of these vital factors are y within the control of the teacher, and in no phase itation can he do such fruitful work as in getting i fully launched. This procedure may consume s minute, or it may take ten, but the teacher must sp pains in making sure that the favorable conditi s regard are established as soon as possible.

cases the thoughtful teacher will have partially co ! in the preceding recitation, or at least fore-sha the situation which is subsequently to be met. Th remains, as the simplest form of this task, the qui struction of the circumstances out of which the learning-response is to develop. In order to cons favorable recitation situation the circumstances shou de appropriate material or activities, so selec organized as to have direct connection with

the purposes and interests of the pupils, thus revealing a need and making an appeal. The effectiveness of this appeal, as well as the vigor and nature of the response, will depend to a great extent upon the mental set of the pupils. The teacher who does not realize this fact will be much perplexed over the fact that a carefully planned lesson succeeds well at one time, and fails utterly at another. The skillful teacher comes to recognize very quickly the signs of an unfavorable mental set, and will wisely take ample time to correct the condition, rather than allow an important recitation to be spoiled. Finally, the recitation situation is not adequate unless the circumstances are such as to permit and encourage the participation of the entire group in some profitable way in the activities.

The points noted in the foregoing paragraph can perhaps be made clearer by an illustration. A class grouped about a table at which one of the pupils is about to demonstrate by means of a rough model of his own making, the way in which the Panama Canal locks operate to lift ships over the ridge which separates the two oceans, would ordinarily represent a very favorable recitation situation. Yet the writer observed a recitation based upon such a situation in which the values to the class were almost wholly lost because the pupils were not prepared for profitable response and participation. The members of the class had not encountered the fact of the Isthmian ridge as a real problem, and consequently had no especial interest in its solution. No attempt was made to lead them into an appropriate frame of mind. Moreover, the pupil who constructed the model was known among his classmates as an odd chap who was usually making queer things. Their mental set, while viewing what one of the boys called "the funny little contraption," was accordingly more disposed toward levity and comment on trivialities than toward

appreciation of the mechanical principle and the geographical significance of its application. The teacher, discussing the lesson with the observer, was half-apologetic and half-indignant over the fact that she felt compelled to use repressive measures to save the recitation, but apparently did not realize where the cause of the failure lay. In her careful arrangement of the mechanical details of the situation she had overlooked the mental set, and had thereby fallen short in half of the teacher's first responsibility in the recitation. The reader will no doubt recall illustrations of this general principle in Chapter VIII.

The emphasis that has just been placed on the responsibility of the teacher for the proper beginning of a recitation should not be misconstrued as justifying continual officiousness of the teacher at the outset of every recitation. In fact, one of the surest evidences that the teacher has been alive to this first responsibility is to be seen in a well-conducted recitation in which the teacher is apparently quite in the background, or perhaps actually absent from the room. Even where the form of recitation is thoroughly socialized, and marked initiative is shown by the pupils, there is no point upon which the pupils turn so often to the teacher for suggestions in their preparation as in regard to "how to begin it." When no direct suggestions are sought, the pupil's mode of approach is regularly modeled upon that habitually employed by the teacher. The currents of interest and the discovery of unexpected problems may cause the pupils to carry the socialized recitation into uncharted territory, but its beginning almost invariably accords with the teacher's practice or what are believed to be the teacher's plans. So, whether the teacher inaugurates the recitation in person, or utilizes pupil leadership to the fullest degree, his responsibility for a favorable situation and initial mental set remains undiminished.

(*b*) **Questioning and directing discussion.** After a recitation has been well started there will be many times, even while pupil-activity is most vigorous, when this will need to be deftly guided into profitable channels. Ordinarily there will be numerous occasions when the pupils' efforts will require stimulation, reinforcement, or redirecting if they are to be saved from surrender before a difficult problem. The guidance of the teacher must in most cases be alert and resourceful if the recitation is to achieve its ends, learning is to be successfully advanced, and the discussion is to be kept from straying into profitless and distracting lines. To achieve this without unnecessary domination or undue discouragement of pupil initiative is the second delicate and important function of the teacher in the recitation.

In the traditional form of the recitation, consisting almost exclusively of question and answer, the teacher's success in directing it depended upon his skill in questioning. As the recitation gradually evolved toward a less formal type, the means by which the teacher guided the discussion assumed more varied forms, but the term "questioning" was still kept to cover them all. Consequently, it has not been unusual for books on methods of teaching to give elaborate classifications of the kinds of "questions," good and bad, with discussions of the relative merits of thought-questions, topic-questions, fact-questions, alternative questions, drill-questions, direct questions, leading questions, and similar variations. Since the tendency of the unskillful teacher is to ask too many questions, and to be more concerned with his own questions and the answers desired than with the real mental processes of the pupils, it is doubtful if the detailed treatment mentioned above has much corrective value. A certain amount of questioning is necessary in any rec-

itation. If the questions used serve effectively to reveal, both to the teacher and to the pupil, the adequacy of the latter's knowledge for planning and carrying out some investigation or other undertaking, or if they successfully direct his mental efforts into profitable lines and keep them there until the pupil arrives at some goal with an unimpaired sense of personal achievement, the questions are probably good, regardless of their designated place in the classification. If, on the other hand, the questions of the teacher dominate the recitation, if they interrupt or confuse the pupils' thought, or if they allow the pupil to shirk responsibility for constructive effort and give fragmentary bits of the information which the teacher seems to have in mind, the questions are certainly poor.

The tendency of most teachers to use too many questions is one of the common faults against which a warning should be given. Stenographic studies of actual recitations, such as those made by Stevens, prove that the majority of teachers fire questions at their pupils with such frequency as to preclude thoughtful consideration of a topic. The result is a series of monosyllabic replies, with the teacher doing, as Stevens proved, 64 per cent of all the talking, and the pupils playing only a defensive rôle in the proceedings. Other practices which are regularly to be avoided are those of asking vague questions, repeating questions, and repeating answers. The first of these usually reveals a lack of definite thinking on the teacher's own part. For example, a question such as "What about the Monroe Doctrine?" is a characteristic example, and merely means a hint to the pupil to repeat any fragments he may recall from his reading of that topic. A realization of the mental state from which such questions spring should require no further arguments to condemn the practice. Repetition of either questions or answers is a time-

wasting performance which encourages carelessness and inattention among the pupils. The writer made it a practice for a time to interview young teachers who showed these faults, in an effort to discover their line of thinking during that part of the recitation. Most of them admitted that they were intent on getting from the pupils certain answers which they had in mind, rather than on trying to discover and redirect the pupils' thought. Their attempts to improve their own recitation purposes brought a marked decrease in their former faults. A systematic experimental study in regard to the causes of all such faults in questioning might prove extremely valuable.

Good teachers do not rely on questioning alone in directing class discussion. Sometimes a brief suggestion or direction, now volunteering some pertinent information, now calling attention to facts which have been overlooked, occasionally a few words of criticism or appreciation — all these are effective means of equal value with questioning in furnishing effective guidance in the recitation.

(*c*) **Recognizing and judging achievement.** The third important function of the teacher in connection with the recitation is in evaluating the work and achievement of the pupils. Due recognition should be accorded, just criticism given, and the pupils shown in the most helpful and stimulating manner the extent and value of their contributions or performance. The tone and standards of the recitation must be such as to command the respect and evoke the thoughtful participation of the pupils. This is another way of saying that the recitation must be characterized by requirements which can be met only by careful, earnest preparation, and must offer opportunities which appeal to the pupil and challenge his desire for achievement and for social recognition. To make these requirements and opportunities permanent characteris-

tics of the recitation is of course an important responsibility of the teacher, whether he sets them directly as personal director of the activities, or prefers a socialized form in which the immediate lead is taken by the pupils. In the latter case the pupils naturally expect the standards of the recitation to be suggested by the teacher, and they feel only disappointment if the latter fails to give merited recognition to their achievements, or to judge fairly and sympathetically their less successful efforts.

The teacher, in providing for evaluations of the pupils' work, may often utilize standardized, objective scales or methods of rating, which are, to a certain degree, automatic in their administration, thus reducing the personal element in a desirable way. Such a plan is excellent, for, while it does not relieve the teacher of the responsibility of designating standards for group work and of securing their acceptance by the pupils, it emphasizes more the teacher's rôle as friendly helper and less that of critical judge. This altered position is of no small advantage to the teacher, not only in winning the coöperation of the pupils in maintaining recitation standards, but also in other phases of his responsibility for the recitation.

2. *The pupil's part in the recitation*

One of the most significant features of the modern type of recitation is the greater encouragement given to pupil initiative in the recitation. The part of the pupil was formerly a very simple one, in theory at least — he merely attempted to answer questions. With the more general recognition of the fact that the pupil's learning must come through his own activity, and with the added realization that almost the only opportunity to give continuity and constructive character to that activity lay in the recitation, teachers have attempted to develop in their classes

an attitude toward the recitation which leads to greater responsibility on the part of the pupils and a wider scope of participation. In the best schools this greater share of the pupils in the recitation takes three forms. These are, first, more comprehensive contributions of material; second, critical evaluation and completion of the contributions of others; and third, constructive planning as to the future work of the group. We shall consider each of these, briefly, in order.

(*a*) Well-prepared contributions. One of the most demoralizing effects of the traditional question-and-answer recitation is the fragmentary, disjointed manner of expression which children habitually develop under its influence. The incomplete and monosyllabic replies, so typical of recitations familiar to us all, reflect with depressing fidelity the incoherent thinking out of which they arise. Modern teaching procedure has begun to realize that a thoughtful, connected, and well-prepared contribution by the pupil is possible only when the latter feels the responsibility for fulfilling his share of a "contract" or is confident of an opportunity to make a presentation of his material, with reasonable freedom from interruptions, before an appreciative group of hearers. Under the stimulus of such a prospect, and the desire to make good in a way which will surpass the expectations of his classmates, the pupil makes the thoughtful preparation essential not only to such a contribution, but also to achievements of a constructive nature in learning.

The realization of the value of promoting such contributions by the pupils has been a potent factor in transforming the technique of the recitation. Instead of the former plan by which the teacher attempted, through cross-examination methods, to collect bits of each topic from almost every pupil, the modern procedure tends more

and more toward trying to secure from each pupil a single, distinctive, and reasonably "complete" presentation. He is also expected, of course, to be sufficiently familiar with other parts of the lesson to participate in the class discussion, but his especial responsibility for an organized unit of material may well be limited at first to a single topic. The method by which he may be led to assume the "contract" for such preparation will be noted later. The satisfaction and thrill of achievement which comes to a pupil from making a really unique and interesting contribution to the work of the group often transforms in a marked way his attitude in the recitation. Instead of being merely passive or on the defensive, he begins actively to seek further opportunities for self-expression and to regard the recitation as an occasion worthy of his best thought and preparation.

(*b*) **Evaluating and supplementing the contributions of others.** The intensive preparation by the pupil of a selected portion of the material for class presentation, as just noted, has one shortcoming. It covers, usually, only a part of the total lesson material, and must be supplemented if the pupil's learning is to have continuity and maintain effective contact with the work of the group. This need must be supplied by mental participation on the part of each pupil in the contributions of others. It will frequently happen that his own investigation and preparation have involved directly related facts with which he can interpret or supplement the reports given. Usually it will be advisable for the whole class to prepare upon at least a minimum portion of the material in order that they may have a common basis for understanding and discussing the reports made by various members of the class. This common ground should be ample to afford a basis for intelligent questions by the pupils in regard to

special contributions made by others. Herein lies the most valuable feature of the modern type of recitation. Any one who has seen the alert and vigorous attitude of an entire class, while one pupil is attempting to answer satisfactorily questions of the others in regard to a topic which he has chosen for special presentation, will realize the marked advantage of this as a learning situation over the customary class-attitude in the traditional type of recitation.

General participation by the group in a discussion of the significance and merits of the material presented by any pupil amounts to an evaluation by them, which leads naturally to an attempt to rectify such shortcomings in the information as may be discovered. Activities of this kind are, of course, highly valuable from a learning standpoint, not merely in the greater clearness and significance of the knowledge secured, but even more in the investigation procedure and the self-reliant skill developed. The wise teacher will cultivate this phase of participation by the pupils even at the cost, temporarily, of not getting quite as many things said in the recitation as he might wish. Measured in terms of pupil-progress there is not even a temporary loss.

(*c*) **Constructive planning.** The third phase of the pupil's part in the recitation deals with the constructive planning of work yet to be completed. One of the most fascinating features in the pursuit of an interesting investigation is the way in which new questions are constantly being encountered which challenge the curiosity and incite to further search. So a successful recitation is characterized by the discovery and acceptance of new problems to be solved, even more than by the presentation and confirmation of achievements in connection with previous undertakings. In other words, a good recitation should be largely, if not predominantly, forward-looking. It is this

feature of the recitation that holds the greatest possibilities for enlisting new interests on the part of the pupils, and in which there is a correspondingly valuable opportunity for utilizing group-participation.

This work of the pupils in helping to plan their own undertakings may either be concerned with an immediate solution of a problem which stands in the way of further progress toward the day's objective, or it may deal with those upon which action may be deferred for that hour. In the latter case, the natural proceeding is for the group to apportion these problems among their members, partly at least by voluntary selection, as "contracts" for their next preparation. The possibilities in this line will be taken up more at length in the chapter following this one. The kind of problem which requires group planning for its immediate disposal is an extremely fruitful situation to have arise in the recitation, and the planning that ensues should represent the most effective form of thinking of which the group is capable. When such an occasion confronts a class, the teacher may well pray silently for sufficient patience and common sense to allow the group to work out its own salvation. A situation of sufficient cogency to induce immediate constructive planning by the pupils is so surpassingly favorable to learning that its utmost value should be utilized.

In the foregoing paragraphs the illustrations of various ways in which the pupils should carry out their part in the recitation have all been drawn from the problem-solving type of lesson. While this is perhaps the most frequent form in which such participation will occur, it should not be inferred that its application to the other lesson types is any the less valid. In situations revealing the need for greater skill there is immediate need for the planning of practice, and later for the evaluation of progress and the

maintenance of practice standards. Such responsibilities may be undertaken largely or wholly by the pupils with most profitable results. Similarly, the learning of attitudes and appreciations is, in a large measure, the outcome of the group-spirit as its members participate in activities which engender a common emotional experience. The social attitudes, which constitute the predominant factor in good citizenship, are especially dependent for their growth upon the development of a spirit which prompts enthusiastic participation in the responsibilities of active group-membership by all the pupils. It hardly needs to be added that the recitation is the most propitious time to provide and utilize these socially integrating experiences.

3. *The socialized recitation*

The principles which have been apparent in the foregoing analysis of the recitation, and especially of the part which should be taken by the pupils, point clearly to a socialized form of recitation as essential to the realization of its best possibilities. The term *socialized recitation* has been popularly employed to connote an extremely valuable development in modern classroom procedure, but, as is customary with a new and popular term, references to it have been so vague or so extravagant that it may prove helpful to attempt some definition and evaluation of it before assuming that it represents a final solution of all recitation problems.

When is a recitation socialized? The real significance of a genuinely socialized recitation lies in the changed attitude of the pupils. Any attempt, therefore, to determine its distinguishing marks must look to that point rather than merely to the form which the external procedure happens to assume. The present danger is that the "so-

cialized recitation" will be standardized and formalized, as so many promising educational innovations have been, and thus lose the vital spirit which should characterize it. The significance of a changed pupil-attitude as the most fundamental indication of a truly socialized recitation may be better seen by comparing it in this respect with the traditional type.

In the early part of this chapter this traditional attitude was characterized as essentially defensive in its nature. Since the recitation was a teacher-imposed procedure, measures for the common defense were not only a matter of group concern but constituted a strongly unifying factor. The pupils who slowed up the recitation felt reasonably sure of group-approval. On the other hand, social pressure was brought to discourage the irregulars who sought by especial preparation or voluntary contributions to promote the purposes of the recitation. A very familiar form of this pressure was a sneering reference to "teacher's pet," although it sometimes took a more vigorous shape. By contrast, the fundamental characteristic of an improved group-attitude is friendliness toward the purposes of the recitation. This means that the pupils now regard the recitation as a satisfying outlet for their social desires, and that the promotion of the purposes of the recitation now has the group's approval instead of its disfavor.

How may socialization be secured? As has just been implied, the socialized recitation is not a new method to be suddenly "adopted," but is rather an achievement which crowns the gradual development of wholesome conditions in the recitation. Certain forms of recitation procedure are, of course, more favorable to this development, as will be noted later, but these are futile unless there is aroused a corresponding desire on the part of the pupils to assume their full share of responsibility in the ways already dis-

cussed. The first consideration of the teacher should, therefore, be directed toward promoting more satisfying opportunities for pupil participation. This usually means a readjustment of the recitation activities to offer a greater appeal to the social instincts of the pupils, and thus to make the success of the recitation seem more desirable as a group objective. The question as to how these social interests can be utilized without a sacrifice of standards was treated at considerable length in Chapter VII, and needs no further attention in this connection. It may be confidently stated, however, that when once the teacher sincerely and thoughtfully sets about the task of making the recitation a genuinely coöperative undertaking, in which the interests and responsibilities of the pupils are both to receive due consideration, the solution of the problem becomes simpler than is usually anticipated.

As was intimated above, certain forms of recitation procedure are especially appropriate to socialized activities. The most familiar of these are the "round-table" discussion with the pupil-leader, the class "club" organization, and the subdivision of the class into "investigation groups." The advantage of such forms lies in the fact that they permit the teacher to be less in the foreground, and thus stimulate initiative and leadership among the pupils. When these forms are supported by a real desire on the part of the pupils to make them successful, the results are highly satisfactory and frequently represent the recitation at its best. It should be reiterated that such attempts, without arousing at the same time a group-spirit of sincere helpfulness, can have no permanent success. The too-frequent effort to substitute pupil-direction for teacher-direction of a class in the name of socializing the recitation, with no corresponding change of the group attitude toward the purposes of the recitation, has sometimes served,

through its inevitable failure, to discredit the term and the progressive idea for which it stands. When, however, group coöperation is attained through developing a situation based upon a proper balance between the responsibilities of teacher and pupils, and emphasizing the importance of pupil initiative and group-participation, the socialized recitation represents some of the best features of modern education and offers a desirable form for realizing practically all the aims of group-instruction.

Summary. In modern educational practice the term *recitation* has come to signify a very different class-activity from that to which the name was originally given. Instead of merely giving back to the teacher certain facts which they were required to learn, pupils now use the recitation as a time for planning, discussing, and evaluating various contributions and undertakings growing out of their work. This means a changed relationship between teacher and pupil in the direction of more helpful coöperation.

The new conception of the recitation regards it as the vitally important occasion upon which most of the responsibilities for stimulating and directing learning rest. Consequently it should be a time when the teacher's influence, the pupil's participation, and the type of organized activity should all be the most favorable to educational progress. In the realization of this, the teacher's part involves first the critical task of setting the situation so as most effectively to challenge and lead on the learning-response. The approach to this situation must be carefully planned, and connected closely with the dominant interests of the pupils. During the recitation the teacher must be ready, at opportune times, with question or suggestion best calculated to keep the discussion within profitable channels. Finally, it is the part of the teacher to recognize and judge achievement, uphold worthy standards,

encourage effort, and maintain the morale of the class as a working group.

The pupil, also, must be led to realize and perform his part in the recitation as fully as possible. The first element in this is the preparation of an individual contribution to the work of the group, representing the best fulfillment of his "contract" that he can achieve. Next he should be ready, in accordance with a previous agreement, to participate in the general discussion and supplement, if possible, other contributions. This implies the third element in the pupil's responsibility, participation in the planning out of which develop the "contracts" and agreements as to the next work to be attempted.

When both teacher and pupils have developed their parts in the recitation, in accordance with the foregoing, the situation naturally and properly tends to take on the form of a socialized recitation. Genuine socialization of the recitation includes not only a form of procedure which emphasizes pupil initiative and pupil-leadership, but must also rest upon the good will of the pupils and their wish to make the recitation a genuine success. In other words, it must capitalize the desire of the individual pupil to win the approval of his group, through bringing about a situation in which the most direct means to secure that approval is by worthy contributions toward the success of the recitation. Under such conditions, the socialized recitation becomes the most practically valuable form which class-activity can assume.

OBSERVATION GUIDE ON DIRECTING THE RECITATION

A. *Character of recitation procedure.*
State which of the following designations best applies, and give reasons.

1. Question-and-answer.
2. Topical or outline recitation.
3. Socialized recitation.

B. *The teacher as director.*
   1. Was teacher able to lead without undue prominence or overactivity?
   2. Skill in questioning.
      a. Did questions stimulate interest and provoke thought?
      b. What use was made of pupils' questions and suggestions in guiding the recitation?
      c. How well did questions clarify the pupils' thinking?
      d. Did method of questioning promote full discussion or fragmentary replies?
      e. Count questions for three-minute interval. Was number justifiable?
   3. Was method of conducting recitation favorable or unfavorable to fullest pupil-participation?

C. *Pupil-participation.*
   1. What evidence that pupils felt interest in the success of the recitation?
   2. Did pupils' contributions show commendable purpose and thought?
   3. To what extent did pupils criticize and supplement one another's contributions?
   4. What share did pupils take in planning further work or investigations?

PROBLEMS AND EXERCISES

1. Dr. Hosic declares that the term "recitation" has outlived its usefulness and should be supplanted by a better expression, such as "class meeting." What objections can you see to trying to make such a change?
2. What would you give as the reasons for the common tendency on the part of teachers to do too much talking in the recitation?
3. Have you found that the use of "defensive tactics" toward the instructor is the customary thing in high school or college recitations? Where does the fault lie?
4. Make a list of the various functions of the recitation in what you consider the order of their importance. Give your reasons for your first selection.
5. By actual observation and count it is not unusual to discover that teachers are asking questions at the rate of three per minute during an entire recitation. In what respects does this indicate poor teaching?
6. What are some of the causes for dull and lifeless recitations?
7. Suggest ways in which pupils may be induced to take greater responsibility in the recitation.

8. What are the advantages in having each pupil prepare with especial care upon a particular topic for which he is responsible? What means would you use to prevent their slighting the rest of the general assignment?

SELECTED REFERENCES

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CHAPTER XIV

PLANNING AND DIRECTING STUDY

How shall training for study be provided? As was intimated in the previous chapter, the planning of work for subsequent study is one of the important responsibilities of the recitation period. We may even go further and say that the opportunities for influencing the methods of study lie almost wholly within the recitation, and that plans for utilizing these opportunities must supplement those which provide the materials and motives for later study. In other words, the problems which we are about to consider belong mostly to the recitation, and are taken up in a separate chapter only because they point toward activities which occur outside the recitation period and which furnish the real test and application of such planning and directions.

What does planning for study involve? If one accepts the statements of the preceding chapter as to the pupil's part in the recitation, no arguments will be needed to show the importance of preparing him to carry on some effective study prior to his participation in the recitation. The great value, also, of skill in this line as a permanent possession will also be conceded, probably even to the point of agreeing with those educators who declare that the most valuable single thing that the school can do for the child is to teach him to study effectively. The point which all will not find so clear is as to what is involved in training pupils how to study.

An analysis of the essential steps in the pupil's preparation of his contribution to the recitation will reveal some of

the vital points upon which his success in that preparation will depend. When these are compared with the studies which have been made as to the chief causes of failure in study, it will be apparent that there are three factors of especial weight in determining success in study. These are: (1) a clear understanding by the pupil of what is to be done — the terms of the "contract" which he is undertaking; (2) a conviction on the part of the pupil that the task has genuine importance, worthy of the effort it may require; and (3) the possession by the pupil of adequate knowledge as to how to proceed in a task of the sort which he is undertaking. Further examination of each of these factors will show its significance, and indicate in what connections the requisite preparation and training for successful study can most satisfactorily be given.

1. *A clear understanding as to what is to be done*

Setting the terms of the "contract." In our discussions of the recitation very little has been said about an assignment, but mention has been made more than once of a "contract" to prepare work. The latter term has been employed to emphasize the coöperative nature of the understanding which should exist between teacher and pupil in regard to the work which is to be prepared for the next recitation. Paraphrasing a proverbial expression, we may say that one can make an assignment, but it takes two to make a contract. It is the full understanding and acceptance by the pupil of a definite task which is of utmost importance to later study.

The greater the share which the pupil has in stipulating the points to be included in the task which he is expected to undertake, the better will this first condition be fulfilled. If the problems which are to constitute a considerable part of the next lesson develop naturally out of the recita-

tion of the day — a proceeding which is a normal mark of a first-rate recitation — every pupil who participates in, or follows, the discussion should understand the nature of the problem which has been encountered, and thus should comprehend what the solution will require. Similarly, if the need of information along a particular line has become apparent to the pupils through some group undertaking, they are in the most favorable position to understand, either as individuals or as a group, what the terms should be of an agreement to prepare and present the needed information.

Ineffective assignment of lesson. As may be inferred from the foregoing, the traditional assignment of lessons has come in for serious criticism, and the present tendency among the better teachers is to modify it almost beyond recognition. The most obvious function of the assignment is to furnish needed guidance for the preparation of the next lesson, but the older type of assignment which consisted chiefly of an enumeration of pages or exercises which were to be studied failed to accomplish this function, when measured by any of the reasonable standards as to what constitutes effective study. It even failed in the single point which it stressed, namely, informing the pupils as to the precise things which they were to do. Evidence of this fact was to be observed in almost every recitation, not only in the frequent assertion — "I didn't know we were to do that," but in the still more frequent misconceptions and misinterpretations of the assignment. Some years ago, in a group of teachers who were discussing this point, the writer heard an experienced teacher declare, "I have given up all hope of ever making a whole class understand just what I want in an assignment." The sympathetic and corroborative expressions that were heard around the circle indicated that the experience was

the usual one with that fairly representative group of teachers.

The reasons for the unsatisfactory results from the typical teacher-made assignment will be apparent from an examination of the assumptions upon which the practice has been based. To expect that a pupil will be able to make the most appropriate use of certain material, even when he knows from the assignment where it is to be found, unless he has some well-defined purpose or need to be served through it, is to assume a maturity not usually found even in college students. The same material may be used in widely different ways, each justifiable under appropriate conditions. In planning an assignment, the conclusions to be sought, the applications to be made, and the purposes to be achieved are of more importance than the material itself. While it is possible, under favorable circumstances, for these points to be clearly attained in an assignment formulated entirely by the teacher, such a plan is neither as sure nor as educationally valuable as one in which the pupils participate.

Pupils never comprehend the teacher's purposes as clearly as they do their own. The teachers who close a hurried assignment with a query as to whether all understand it, and then assume that the affirmative reply means anything more than that the children are not interested enough to consider yet what they are going to do with the material, are serene examples of unreflecting optimism. During the succeeding study-hour the pupil, having no especial purpose of his own to satisfy through the material, and only dimly divining the teacher's aims, follows the safe and familiar plan of trying to remember a sufficient collection of fragments from the material to appease the teacher, and thus leave the latter free to make what he can out of it during the recitation.

What constitutes a good assignment? Perhaps the greatest delusion under which many teachers labor in this connection is the belief that they are saving time by taking only a brief space at the end of the recitation to make the assignment. Deprived in this way of the guidance which an adequate assignment should furnish, the pupils flounder about in their study, and most of the next recitation period is consumed by the teacher in trying to save the situation and teach a poorly prepared class. Half that amount of teaching as a preliminary phase of the assignment would have made the study-period doubly profitable, and would also have made the situation far more pleasant and interesting for all concerned. This raises the question as to what a good assignment should include.

Even in its simplest form, the assignment should include the formulation, preferably by one or more of the pupils, of the precise agreement which the pupil individually, or the class as a whole, is undertaking to carry out during the subsequent study-time. In no other way can either pupils or teacher be sure that there is a mutual understanding as to the responsibilities of the study-period. Such a statement of the assignment by the pupils is of especial value to the teacher, because it will reveal either how clearly the pupils have in mind the problems which have grown out of their own discussion and are ready to be amplified into an assignment, or how well the pupils have comprehended the tasks as set by the teacher. In the latter case there will frequently be disclosed a misconception as to requirements which would have resulted in inadequate preparation for the next lesson.

As a corollary to the foregoing, a good assignment should also develop some plan by which the pupil will know, with reasonable certainty, when he has fulfilled his contract.

Sometimes this is an integral part of the assignment itself, a situation which is extremely favorable to business-like study, and which appeals to the pupils because of its definiteness. In most cases, though, there is not such a self-checking feature of the undertaking, and the consequent uncertainty as to when an assigned task is fairly completed is responsible for more indefinite preparation and more slacking, even among students of reasonably good intentions, than perhaps any other single factor. The working out of a plan, in connection with any assignment, by which the pupils may be enabled to know when they have fully mastered it takes time and thought, especially at first. It frequently compels a teacher to make the assignment itself more definite, but as teacher and pupils both become accustomed to the procedure, as part of the assignment, the latter will quickly get the idea, and will adopt their own plans for self-checking. The gain in definiteness of preparation, confidence, and saving of recitation time is usually impressive.

If we accept the principle that the assignment should furnish the guidance necessary for effective work in the study-period, we can hardly escape the conclusion that there are other features which belong in a good assignment. There should be suggested modes of attack that will be more fruitful and less wasteful of time. There should also be found a place in this connection for arousing an adequate interest in the work to be attempted, so that there will be sufficient driving power to carry the pupil over the difficult parts. These last two features, however, will receive particular attention in subsequent paragraphs, so they need only be mentioned here to emphasize the varied responsibilities involved in making an assignment, with the consequent necessity of giving it enough consideration and time to meet adequately its needs.

2. *Motivating the assignment*

The task to seem worth while. The real test of motivation, and of that skill in teaching which prepares a pupil to carry on after the recitation, comes during the study-period. A teacher may, by force of personality and through an entertaining form of presentation, keep up a semblance on interest among the pupils. But when each pupil faces his problems alone, his attention will wander, and his forms of study will lack force and continuity unless his interest has been vitally enlisted, and the work thereby connected actively with his purposes.

All the arguments advanced in favor of the fullest possible pupil-participation in the selection and arrangement of problems and materials for study, as a means of securing a clear understanding of the precise tasks ahead, apply with even greater force to the value of that plan as a means of stimulating interest. Every one is interested in his own discoveries, often quite beyond their intrinsic value. The fact that a pupil has had a personal share in stipulating the terms of his particular contract for study, even when he has had no direct share in the discovery of the problem involved, nevertheless makes a strong appeal to his desire to make good, and is a very stimulating challenge to his instinct for achievement. Such motives as these play a very potent part in animating the work of the world of adult life, and certainly should not be disregarded in the schoolroom.

In many instances the part taken by the pupils in developing and apportioning the materials for subsequent study will serve, at one and the same time, to ensure a clear understanding as to the type and extent of study needed and to stimulate, in a very lively fashion, an active interest in the completion of the study itself.

Since the problem of interest and motivation assumes such urgent proportions in connection with the pupils' study, all that was set forth regarding it in Chapter VII has special application here. The reader is referred to that discussion for a more complete list of available sources of interest to utilize for this purpose. It does not seem out of place, however, to reemphasize at this place the futility of expecting genuine study without having made sure that active interest is present. Modern education questions the right of any teacher to ask a pupil to study a task for which the latter can see no value. Common sense recognizes that such a condition produces no profitable study, but merely more evasions and subterfuges, with their demoralizing effects.

3. *Training in how to study*

Teaching methods of study. If a pupil knows clearly what is to be studied and has an active interest in the undertaking, there is little danger that the study-period will be grossly misused. Undue expenditure of time and energy, however, may be saved, and the discouragement that comes from delayed progress may often be prevented if pupils learn the most effective methods of study applicable to a given task. In fact, the difference between success and failure, at least within the time available, is often a matter of knowing the right method of procedure. In discussing the reasons why methods of study should be taught, as early as possible, the writer has said in an earlier volume (*Training for Effective Study*, p. 155):

> The most important of these reasons are not the measurable ones of increased results or economy of time and labor, although these should be sufficient. It would of course be inexcusable waste to allow a pupil to continue spending two hours regularly on tasks which he could be taught how to do in one hour. In

most cases, however, he will not spend the extra hour necessary for completion by a crude method of attack. Instead, his resolution, interests, and efforts weaken somewhere short of that time, and the result is apt to be not only unfinished preparation, but discouragement, distaste, and resentment as well.

In order to utilize to the utmost the necessarily limited energy which the average pupil is willing to devote to his preparation, it is wise to develop, in connection with most assignments, some suggestions as to the most promising methods of procedure in that particular case. A very brief discussion on the relative merits of the proposals will often prove illuminating to the individual pupils, and may provide them with a saving alternative in case a first effort is unproductive. The writer is inclined to believe, after a trial of both plans, that it is better to introduce rules of study in this way, one or two at a time and under circumstances most appropriate for their use, than to devote the major part of a series of recitations to the matter. Rules of study are justifiable material for presentation only to the extent to which they are actually applied, and this seems dependent upon there being an immediate opportunity to make profitable use of each rule practically as soon as it is proposed, and unconfused by association with other rules not immediately applicable.

Planning the attack. The occasion for developing these suggestions as to effective methods of study will come easily and naturally if the pupils are led to appreciate the importance of formulating some preliminary plan of attack before trying to plunge into the actual task assigned. This is so essential to really intelligent study that it should regularly receive at least momentary consideration as a part of every unusual type of assignment, until the pupils come habitually to regard it as the first step in study. The general form which this step should take in any case

will seem quite obvious, no doubt, to a mature student, but it is not so at all to the majority of children, even up to the early high school years, and the amount of time wasted in consequence is a serious item in school economy.

The matters to be considered by any one planning for study will usually include such as these: best possible sources of information; kind of preparation best adapted to the material; preliminary designation of topics to be especially emphasized; and decision as to amount and kind of note-taking or memory-helps advisable, in the light of the particular use to be made of the material studied. There is no type of study in which this step will not prove a decided saving of time and energy, and such a preliminary planning is of marked value in assisting the recall and application of the facts later. This is because the student has prepared in advance a rough basis for classifying and organizing information as rapidly as he comes upon it, and thus there is avoided a confused mass of unassimilated material. Not the least valuable of the results from a preliminary planning by the pupil is the fact that it leads him to assume, almost automatically, a correct attitude toward the material to be studied. It saves him from that unfortunate but too common surrender to the material, in which the student passively allows himself to drift with the running current of words, without using them for constructive purposes of his own. The preliminary plan induces him to assume an active, purposive attitude, alert for significant features in the material, and discriminating as to relative values, and thus to maintain a poise and independence throughout. The full attainment of such an attitude in study will, of course, need other assistance, but a good start is made whenever the pupil decides in advance what use to make of the material.

Adapting study procedure to lesson-types. If study is to be intelligently directed toward some desirable goal, it naturally follows that there should be provision for adapting the methods of study to the particular purpose in hand. In other words, the procedure in study should conform to the type of learning-activity which characterizes or is to characterize the recitation time. The nature of these adaptations could be at least roughly inferred from the lesson-types themselves, but there are certain phases of each, from the study-hour viewpoint, which merit separate examination.

(*a*) **Preparing for practice-activities.** In the chapter dealing with The Lesson for Habits and Skill, it was pointed out that any attempt at practice before a clear image of the activity is established is wasteful. It was further advised that the phases of practice which require the greatest care for their correct performance be carried on, as far as possible, in the class period and under adequate supervision. There are, nevertheless, many practice activities which must be carried on during the study-period, and the problem regarding them is how to provide properly for such practice, in view of the two considerations repeated above.

It is a safe rule that practice as a study-activity should follow, instead of precede, the lesson in which the form for practice is presented or emphasized. The reason seems so obvious that the point would not be raised if its violation were not a matter of such common occurrence. The persistence of this fault in teaching is due to the traditional tendency to make the recitation almost wholly a backward-looking affair — that is, to giving predominant consideration to material previously assigned for study. There is little hope of eradicating the fault without going to the source and giving the forward-looking part of the recita-

tion its just proportion of time. On the average this may properly be a full half of the period. Thus adequate opportunity may be secured for doing, in the enlarged type of assignment, the most fruitful kind of teaching which can be employed — the kind which leaves the pupil alert and prepared to begin the work of the study-period with assurance regarding the direction and probable outcome of his efforts.

Even when the practicing to be done during the study-time is in connection with activities for which a guiding pattern has been previously established, such as written language work, arithmetic exercises, or silent reading, a preliminary reviving of the image always repays well in results. Sometimes a mere question, such as, "How are these to look when finished?" or "What are these exercises to illustrate?", will suffice to resurrect the image of the form to be sought. Sometimes an almost hopelessly blurred image is revealed by such a question, with the consequent duty of getting a clear one established before satisfactory practice can be assured. Instead of the customary irritation at discovering such a condition during an assignment, the teacher should rather feel at least half grateful at learning the real situation before a study-period has been lost in useless or aimless practice.

(*b*) **Preparing for appreciative reading.** It not infrequently happens that the study-period is made the occasion for activities which are intended to stimulate appreciation. Such assignments should be made only after careful planning, since it is often wiser to have the study-period a time for collecting information and preparing a background for appreciative participation during the recitation. When the circumstances are such, however, as to warrant designating the study-time for such an activity as appreciative reading, very careful preparation should

be assured. This means that the children should have an emotional set in harmony with the responses sought, and if there is need, difficulties should have been anticipated and removed so that there will not be so many thought perplexities as to preclude appreciative enjoyment.

An illustration of what this means in actual practice will perhaps be helpful. A very successful teacher of literature designated two study-periods each week as "Pleasure Reading" hours. In the recitation immediately preceding, she introduced the children in a most adroit way to various books and stories available. As soon, however, as the pupils had a taste of each and were eager for more, she left it, and took up another. At the end of the period they were free to spend the succeeding hour in the reading of their own choice. The rush to secure the unfinished selections, either on that day or as soon as possible, was a convincing proof of the skill of what a promoter would call the "selling campaign." By this means the teacher succeeded in introducing the pupils to constantly better reading in a way that held their interest, and led them willingly toward more desirable standards of taste. She even succeeded in getting read, with keen voluntary application, some selections which other teachers had to "teach" as required work to unresponsive classes. It makes a surprising difference what the learner's mental set is in approaching material of that sort. The distinction between work and pleasure is a state of mind, rather than the effort involved.

(*c*) **Preparing for problem-solving.** By far the greatest part of the study activities will fall into the final group in which some phase of problem-solving is a prominent factor. Ordinarily, however, the complete act of thought, as discussed in Chapter XI, will not constitute the characteristic content of the work to be studied. The first

two steps in the process, especially if the problem is a comprehensive one, should be taken in the preceding recitation. In fact, the discovery and defining of problems is one of the foremost functions of the recitation. The three remaining steps constitute highly appropriate material for independent study, although final verification should ordinarily be completed, or at least confirmed, by the entire group which participated in the discovery of the problem or was actively concerned with any part of its solution.

In the case of many problems — usually the most fruitful kind of problems — the complete solution may be a matter which will extend over several days. Under such circumstances, the work of investigating data, organizing and assembling information, or analyzing a proposal in the light of its bearing on the main problem — these are all tasks which are exceedingly appropriate undertakings for the study period, and possess both interest and value as necessary phases of the large problems. It will frequently happen also that various minor problems are encountered during these investigations, and when these develop naturally out of the larger undertaking, and are motivated by it, they furnish the best possible material for individual study, presenting, in a smaller way and as a personal responsibility, the essential steps of a complete act of thought.

The detailed procedure in connection with each step in problem-solving has been discussed at some length in a previous chapter, and this holds good whether the thinking takes place in the recitation period or in the study-hour. There are so many pitfalls in the thinking, however, that there will be constant need with immature pupils to make sure that the requirements for each step are clear, especially in so far as they apply to the particular phase of

problem-solving which they are about to undertake. This can best be done by illustrative class exercises, at frequent intervals, to which reference can be made whenever there is need to have the pupil test his plan by comparison with a reliable example. Participation in a well-guided and thorough-going solution of a group-problem, followed by the application of the same procedure to similar problems in individual study, provides the most valuable training in sound thinking that the school can give. The teacher should remember that the two phases are reciprocal, and that the best results come only from providing adequately for each in its turn.

4. *General helps to study*

Needs common to all types of study. Learning in the study-period is not essentially different from learning at other times. There are, however, certain elements in the situation which confronts a learner when he attempts individual study that are less favorable to easy progress than those of the recitation. There are lacking the stimulation of group-activity, the guidance and direct evaluation by the teacher, and the relative protection from many distracting influences which tend to disturb study-plans. There are, of course, compensating advantages on the other side, but the full attainment of these is to a certain extent dependent upon providing safeguards against the common difficulties attendant upon the attempt to carry on independent study profitably. The suggestions along these lines which follow are adapted and condensed from the later part of Chapter VI of the author's *Training for Effective Study*, where a more extended discussion of these and similar measures will be found.

"Warming-up" and "the flying start." A considerable part of the study-period is regularly wasted in getting

started. This waste has a tendency to continue in various forms, as distractions are likely to originate at this time which persist in their disturbing influences. The best insurance against all the dangers that threaten a safe beginning on a study-task is to make that beginning a vigorous, active one. Psychologists recognize a "warming-up" period at the start of any mental effort. Work does not reach full efficiency until after the warming-up is completed and momentum acquired. The time necessary for this is dependent to a considerable extent upon the vigor of the attack.

In view of its many advantages, both defensive and aggressive, the "flying-start" habit is an extremely important one to cultivate. The responsibility for this rests primarily with the recitation, as may be inferred from the earlier part of this chapter, but where there has been a break between the recitation and the time for study, there should be special measures used to make a prompt aggressive beginning the regular procedure. A routine signal device, comparable to starting runners on a race, is sometimes used with success. The essential thing to strive for unfailingly at the outset of a study-period is a beginning marked by cheerful confidence and good humor, but at the same time by business-like energy and alertness. The very term, the "flying start," always appeals to them as a study-slogan, and when it stands for a distinct saving in time and effort it automatically assists in making the procedure habitual.

Setting a premium on independent work. The importance of developing independence in study-activities is not always fully appreciated. As long as the child is expecting to call upon the teacher if serious difficulty is encountered his maximum ability is never quite put forth, and development is correspondingly short of what it might

be. On this account the study-period should be planned and supervised in such a way as to put a premium upon independence. From the very beginning the pupil should be led to think of the task or contract as his very own, instead of as something to be done with and for the teacher. One excellent supervisor of second-grade classes offers special recognition to those of her pupils who succeed in preparing a lesson without asking a single question during the study-period. There is, of course, the possibility of carrying this too far, but if pupils have been properly prepared in advance, and the teacher uses common sense in keeping the practice elastic, there is little danger of anything but good results. Procedure in this respect should be adapted to the training and maturity of the pupils, but the encouragement of independence should be held always as a definite objective.

Regularity of environment. One of the best means of safeguarding the study-period is through the establishment and encouragement of definite study habits. A potent help in this direction is the systematizing of the circumstances under which work is done. There is no question as to the value of a "place-study" habit and a "time-study" habit. Many students have by trial convinced themselves of the greater ease of preparing lessons according to an habitual time-and-place schedule, even going so far as to compare the resultant mental efficiency to the physical benefits accruing from regular hours of eating, sleeping, and bodily activity.

On the other hand any change in the environment tends to make application more difficult. The explanation is simple. One's attention instinctively turns to any new element in his environment, and the significance of that must be more or less definitely appraised before he can fully settle to prosaic tasks. The "time-and-place habit" in

study is always earnestly recommended to college students by writers and instructors, but its value probably increases all down through the grades, as primary teachers will realize who know how disconcerting to small children even a slight novelty in the environment may be.

Under-learning and over-learning. Most pupils are unable to produce results in the recitation proportionate to the time spent in study because of the waste of under-learning. They almost get needed information clearly in mind, but stop while it is still so befogged as to be unreliable or misleading. They think they have solved problems, but fail to reach a point of verified results, or even of knowing precisely how those were obtained which they have. Pupils should learn that from the standpoint of actual results such study is really a waste of time and effort. The workman who carries his burden *almost* to the top of the wall might have saved his strength by leaving it on the ground from the first.

If the importance of complete mastery of certain essentials in a study-lesson is properly presented to pupils, they respond readily. Even the pupil who does very little studying is anxious to get the fullest possible credit for the labor invested, and so can be interested in the practical advantages of doing well what is done at all. Pupils who make it their rule not to consider preparation complete until certain points are known positively are not only certain to participate more creditably in the recitation, but are also learning a new satisfaction born of self respect and independence. The danger that pupils will voluntarily over-learn essentials is so slight as to be negligible, while the waste of under-learning is an ever-present and demoralizing menace to efficient study. Consequently, in doubtful ground between the two, safety lies on the side of thoroughness.

Personal study rules. There have been published various lists of study-rules, most of which have very practical value. The teacher in recommending these or in selecting rules for the use of pupils is reluctant to omit any one which seems to have especial value for certain individuals in the class, and by the time all needs are provided for the list is usually of some length. The longer such lists of rules are the less effective they are likely to be, since the pupil, being unable to remember and to use all, is inclined to make very little use of any. This difficulty can be satisfactorily met and additional advantage secured by having each pupil prepare a personal list of study-rules.

The material from which the pupil makes his selection is a more comprehensive list presented by the teacher. The latter should go over the full list of rules with the pupils, explaining the reasons for each one. After the pupils understand the meaning and use of them all, they may be given a definite number of days in which to try the rules, one by one, in their study. At the end of that time they are to select a personal list of those especial rules which they have found the most helpful, or of which they feel the most need. The trials made of this plan indicate that the selections are usually rather well made, and, better still, the pupil, after selecting the rules, feels some personal responsibility for using them. Such a list is short enough for memorization or at least for a ready working familiarity. Moreover, an unobtrusive suggestion or two will usually secure the inclusion of those especially needed by that pupil, even if he has not of his own accord made a wise choice. Some such plan for inducing pupils to attempt to systematize their study becomes vitally important by the time high school is reached. Whatever form the arrangement may take, it should emphasize the elements of self-direction.

Summary. One of the chief aims in teaching should be to develop in the pupil the ability to direct his own learning. The most valuable help that can be given, either toward this end or toward the more immediate one of a successful recitation, is in properly planning and directing the pupil's study. The responsibility for this belongs in the recitation, and its fulfillment demands that three things be accomplished — first that the pupil understand clearly and definitely what he is to undertake with means of determining when he has accomplished it; second, that he feel the value and significance of the undertaking; and third, that he acquire proper methods of study, preferably by a cumulative plan, each one being developed as it is needed. The first two of these can best be accomplished by having the pupils participate in the selection and allotment of topics for study. The last one involves many details, and should receive some attention in practically every recitation.

In general the methods of study should correspond to the various types of lessons for which preparation is to be made. Consequently, the peculiar needs of each type of learning should be considered, and only such phases of them assigned for individual study as can be successfully and economically carried on apart from the guidance and group participation of the recitation. In addition to these special adaptations in study, there are some general factors which should receive consideration because of their direct influence on successful study. Among these are a vigorous start, the cultivation of independence, regularity of environment, precautions against under-learning, and the preparation by each pupil of personal study-rules. The purpose throughout in planning and directing study should be the gradual development of greater self-direction and independence on the part of every pupil.

OBSERVATION GUIDE ON PLANNING AND DIRECTING STUDY

A. *The contract and assignment.*
   1. To what extent did the assignment grow out of the problems of the recitation?
   2. Part taken by pupils in developing assignment?
   3. Did pupils fully accept the work to be studied and agree to its requirements?
      a. What plan of motivation was used to secure willing acceptance of contract?
   4. What precautions were taken to make sure that all pupils fully understood the assignment for study?
   5. Did the form of the assignment suggest a plan of study?

B. *Developing methods of study.*
   1. What suggestions, if any, were made during assignment in regard to plans for study?
   2. Were children encouraged to tell how they had gone about their studying, and discuss ways of improvement?
   3. Was any advance analysis made of the assignment in order to locate special difficulties and plan how to attack them?
      a. If this was not done, indicate at least one point where it might have been helpful.
   4. Were the requirements of the recitation such as to encourage thoughtful, independent study, rather than memorizing scraps or aimless reading?

PROBLEMS AND EXERCISES

1. How much of the recitation period should regularly be used to prepare for the subsequent study-period? Justify your answer on the basis of the relative importance of the pupil's activities during each.
2. Under what circumstances would you consider that an assignment could fairly be called a "contract"? How do these circumstances affect the pupil's response?
3. What are the advantages and disadvantages of giving the assignment for the following day at the beginning of a lesson?
4. What are the advantages of giving the assignment at the close of a lesson? What are the dangers in this practice, and how may they be avoided?
5. Under what circumstances would it be possible to have the assignment develop during the recitation? What advantages might this plan have over either of the two just mentioned?
6. Discuss the relative merits of having the study-period for any subject just before the recitation, and of having it immediately after. Does the character of the recitation and of the assignment make any essential difference upon this point?

7. Choose any grade in which you think that special training for study would be desirable, and indicate: (*a*) how much time per week you would allow for instruction in methods of study; and (*b*) what general plan you would follow in giving it?
8. To what extent should the teacher attempt to direct the pupils' methods in the study of "home-work"? How can this be accomplished? Would you try to enlist the coöperation of the parents in this matter?
9. How would you go about helping pupils determine for themselves what is the best method of attack for any particular assignment?
10. What do you consider the greatest single element of waste in the usual methods of study, as you have known them? How would you begin the task of correcting it?
11. Offer suggestions, as you would to pupils, regarding ways of trying out before the recitation the completeness of their preparation.

SELECTED REFERENCES

Davis, S. E. *The Work of the Teacher*, chap. VI. Good presentation of the functions of the assignment.

Earhart, Lida B. *Types of Teaching*, chap. XIV. Discussion of teaching pupils how to study, based on first-hand investigation.

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Whipple, G. M. *How to Study Effectively*. Discussion of principles and summary of rules for study.

CHAPTER XV

THE USE OF PROJECTS

Disagreement as to meaning of terms. One cannot read far in modern educational literature without encountering the term project, usually with commendatory statements or implications concerning its importance as designating a valuable development in educational practice. Only a little further reading is necessary to discover, however, that the term is used in a variety of ways, some of which are obviously conflicting. Accordingly, before considering the use of projects in teaching, it will be prudent for us to examine the points of view of at least the two most widely different groups of writers on this subject. In this way we shall lessen the risk of misunderstandings in our own discussion on the use of projects, and may also furnish some assistance to those undertaking supplementary reading in this field. The best means of accomplishing this is probably to follow the plan of noting the circumstances under which the varying uses of the term have developed.

Original use of "projects" in teaching. The first general use of the term project in connection with teaching seems to have come about in 1910, or possibly a little earlier. It was used at that time to designate a way of organizing and teaching agriculture — a plan by which each student undertook first-hand a productive activity of an agricultural nature under the actual conditions normally encountered outside of the school. The responsibility of carrying through to completion an activity under these circumstances proved not only an effective spur to interest, but also promoted a mastery of the information involved with a thoroughness far superior to the mere "classroom

agriculture" which it superseded. Its successful use in this subject caused the idea to be adopted by teachers of home economics, and later by those in manual arts. During this time the term signified a practical, constructive, or productive activity, carried through to completion under the actual conditions of out-of-school life. In that sense it still connotes the most satisfactory basis of teaching in those fields.

Broader applications of the term. The obvious values of this new method of linking the work of the school with the real problems of the home and of the industrial world stimulated educators to try to extend the principle to all phases of school work. It was found that certain phases of language-study, arithmetic, geography, and, in fact, most subjects were given much greater vitality, and the material concerned more readily mastered, if encountered in connection with constructive activities which duplicated, in most essentials, as many points as possible of the life situations in which such material would be demanded.

In the attempt to adapt the plan so as to make it serve the fullest possible range of school work, considerable modifications seemed desirable, but there was a difference of opinion as to what phase of the original was most essential, and therefore entitled to retain the name, project. Some educators held that the *natural setting*, or *life outside of school* criterion was most important. Others felt that the *complete constructive activity* factor was the most fruitful. Still others believe that making the activity *purposeful* constituted the most valuable contribution of the new plan. Many emphasized the *problematic* or *problem-producing* feature, and so proposed the term *problem-project*. The various combinations and shades of emphasis in connection with these ideas have resulted in more than a score of definitions. The statement which perhaps best repre-

sents the viewpoint of those who would keep the term nearest its original meaning is that by Stevenson,[1] based on a similar one by Charters. He says, "A project is a problematic act, carried to completion in its natural setting."

Those educators, on the other hand, who would give the widest scope to the application of the term go beyond these limitations, and insist that it is necessary only that an act be a *complete purposeful experience* in order to be properly termed a project. These would include under the term not merely constructive undertakings and problem-solving activities, but would insist as well that any task of learning may become a project if only the learner so purposes. For example, Kilpatrick, a well-known leader of this group, in an article in the *Journal of Educational Method* for December, 1923, said: "Two other types quite valuable and in danger of being overlooked as projects are, first, the purpose to organize for grasping and recall a period of history or a point of view, and, second, the purpose to fix in memory for future use the organization so made."

Objections to making "project" methods too inclusive. Modern educators, probably without exception, will agree that the pupil should be led to take, as far as possible, a "whole-heartedly purposeful" attitude toward school activities, and that school tasks should be made so significant to the pupil that he will earnestly purpose their achievement. Many object, however, to having this point of view regarded as synonymous with the "project method," which Hosic declares is "a point of view rather than a procedure." The nature of some of these objections is very well set forth in the criticisms of Charters and G. M. Wilson.

[1] *The Project Method of Teaching*, p. 89. Reprinted by permission of The Macmillan Co., publishers.

In Chapter XIV of his *Curriculum Construction*, Charters takes exception to the definition by Kilpatrick which makes the "purposeful" character of an activity the sole test of its being a project. He says:

As soon as we attempt to use this definition as a method of classifying activities, we are completely at sea. Is making a dress a project? This we cannot tell until we have watched the individual engaged in the operation. When we find that the activity is "whole-heartedly purposeful" it becomes a project by the definition, but it is not a project until that point is reached. The twelve-year-old girl who has been sewing on an apron for the past six months in school, but who is not whole-heartedly interested in the activity, is not working on a project. But her companion, who loves the work and joyfully sews upon an identical apron, has a project.

Moreover, an activity might, by this definition, be a project today and cease to be one to-morrow. One girl who has spent six months upon an apron may have selected it with great enthusiasm and worked on it with vigor for two months. Then her interest may have disappeared for one reason or another. So, for two months making the apron was a project and for the other four months it was not.

Another kind of objection is put forth by G. M. Wilson, who insists that the importance of securing "purposeful activity" from the pupils is already well designated by the term *motivation*. Consequently, he holds that the use of the expression "project method" for that purpose is not only likely to obscure the real contribution which the project as a constructive activity makes to educational practice, but is an unwarranted intrusion into an office already well filled, and likely to confuse the well-understood techniques of teaching already worked out.

In the *Journal of Educational Method*, volume 2, no. 9, Wilson says:

As I understand it, a project is an actual undertaking somewhat on the basis of a life pattern. Motivated or purposeful

activity is much broader than project. The relation may be shown diagramatically:

Motivated situations:
1. Motivated drill.
2. Motivated appreciations.
3. Motivated problems.
4. Motivated projects.
   a. Subject projects.
   b. General projects.

The project involves doing, but not all doing in school work results in a project. There are practical experiments, exercises. The project involves pupil planning, but not all pupil planning results in a project. It may be a game, a drill exercise, an exhibit, or something else. A project involves purposeful or motivated activity, but not all such activity results in a project. In fact all school work should be purposeful or motivated, but only a small part of school work can be organized into projects.

Limitations of the project method. Both Kilpatrick and Hosic, probably the two best-known champions of the "project method" as a fundamental philosophy and guide in teaching, are free to admit that "purposeful activities" can hardly be expected to cover the entire scope of school work. Hosic[1] thus recognizes the limitation:

> No one, I believe, uses the term *Project Method* to cover every possible or desirable kind of learning or teaching. Much learning is obviously the result of circumstances which the learner did not and perhaps could not in any way control. Teachers, it is freely admitted also, should at times coerce, not priding themselves, of course, on the amount of compelling they do or their mastery of the technique of it.

Kilpatrick, in *Foundations of Method*[2] (p. 350), while insisting that the constant goal should be purposive activity, realizes the difficulties which may be encountered,

[1] From *Brief Guide to the Project Method.* Copyright, 1924, by the World Book Co., Yonkers-on-Hudson, New York.

[2] Reprinted by permission of The Macmillan Co., publishers.

and admits the probable necessity of compromise in this passage:

> Purposeful activity furnishes better learning conditions than coercion — better for the primary learning, better for associate and concomitant learnings. But I have never said that you can get purposeful activity just by wishing it or by decreeing it. If you have the purpose working with you, or if you can get it, then you will get better learning. If not, then you must do the best you can, taking everything into account.

A working interpretation of the project. In spite of the conflicting opinions as to what should be called a project, all the statements quoted are based on sound educational theory and reflect substantial agreement on the fundamental principles upon which the best modern practices are based. If our examination of these views has shown more emphatically the general belief of progressive educators in the importance of "pupil-activity," "wholehearted participation," and "active interest" — terms which our readers have encountered so frequently — and has served to put us on our guard against misinterpreting statements in which different uses are made of the term project, it has been worth while. It now remains for us to note what applications of the project idea have not already been considered in preceding chapters and then to determine how these can be best utilized as a part of our technique of teaching.

In harmony with his broad definition of a project as a purposeful activity, Kilpatrick recognizes four types of projects. His various discussions (see references at close of this chapter) of these types may be summarized as follows:

> Type I; "The Producer's Type," where the purpose is to embody some idea or plan in external form as building a boat, writing a letter, presenting a play.

Type II; "The Consumer's Type," where the purpose is to enjoy or appropriate some experience, "as listening to a story, hearing a symphony, appreciating a picture."

Type III; "The Problem Type," where the purpose is to straighten out some intellectual difficulty, to solve some problem, as to find out whether or not dew falls, to ascertain how New York outgrew Philadelphia.

Type IV: "The Specific Learning Type," or Drill Type, where the purpose is to obtain some item or degree of skill or knowledge, as learning to write grade 14 on the Thorndike scale, learning the irregular verbs in French.

The reader will at once recognize that the last three types have each been considered at length in our discussions of lesson types, with constant insistence on pupil-participation of a purposeful sort, and suggestions for securing this kind of activity. The writer is entirely willing to have those chapters re-read as discussions of types of projects, since, as Hosic points out (Hosic and Chase: *Brief Guide to the Project Method*, pp. 7, and 75), the project method is "a point of view rather than a procedure," and "the procedures to be employed" must be drawn from the known facts regarding the acquisition of skills, problem-solving, and such matters of teaching technique, with due provision for "The improved assignment and more effective direction of study" and "motivation of all types of learning, including drill."

There is left, then, for our consideration the first type, the "Producer's Type." This is the kind of activity upon which practically all educators are agreed as deserving the name *project*, and it includes certain factors so favorable to learning as to cause a widespread conviction that it represents the most fruitful development in educational practice of recent times.

Educational value of the productive type of project. The number and variety of features of unusual educational

value which develop in connection with a project in which the children set out to perform some concrete undertaking may perhaps best be seen by noting the developments of such a project. A reasonably good example to take is one that was carried on by a seventh-grade class of a suburban village school. The locality was troubled with mosquitoes. The teacher of elementary science was convinced, by a preliminary survey, that these were produced from the pools of water which were allowed to stand by the roadsides and on certain vacant lots. She concluded that this was an opportunity for a class project. So, at an opportune time during a recitation early in spring, she read from a magazine an interesting account of how a certain community had completely eliminated the mosquito pest which they had formerly suffered. During the well-guided discussion, illustrated by local references, it was proposed by one of the pupils that they undertake the same kind of campaign for their community. The proposal was eagerly received by the class. The teacher insisted, however, that they should consider carefully what difficulties they were likely to meet, and make sure that they would be equal to the undertaking before they made a final decision. The challenge only increased their interest. A rough plan for the campaign was mapped out, definite tasks selected or apportioned, and responsibilities accepted.

The problems which had been foreseen soon multiplied as the undertaking progressed. Questions as to the life-history of the mosquito, methods of control, how to identify the disease-carrying mosquitoes, and similar matters had to be investigated. Local surveys were made to determine possible breeding places. Not the least of their problems was that of educating the public and securing community-coöperation. As an incident to this part of

the project, it was decided to present before the Parent-Teachers' Association, in semi-dramatic form, the story of the discovery and proof that the mosquito was responsible for the spread of yellow-fever. In their preparation for influencing public sentiment by this means they became more thrilled by the examples of American heroism in fighting disease, according to the pupils' report, than they had ever been by accounts of war. Finally there was the practice in phrasing and writing their letters to the town councilmen, setting forth the facts they had discovered and asking official help in their campaign.

The objective results of this project were sufficiently impressive to induce the community to take more thorough action the succeeding year, but the educational results upon the pupils were the most valuable achievement. These included an unusual fund of clear and well-organized scientific information, increased skill and persistence in problem-solving, a marked improvement in habits of expression, a quickened sense of civic responsibility (especially in matters of health), and a new attitude toward patriotic service. All related school work was transformed by the awakened interest and vigorous purpose which animated the group. Since it is possible in practically any school to effect a similar change in the character and effectiveness of pupil-endeavor through a well-chosen and well-directed project, it is not strange that so many teachers regard the project and its possibilities with unusual enthusiasm. Under proper conditions, a good project of the constructive type may contribute, in a most valuable way, to better problem-solving and the mastery of information, may induce responses most favorable to improved attitudes and appreciations, and may motivate specific drill and practice in a highly effective manner. One of the best effects, usually, is the changed attitude toward

school work in general — the substitution of an active, vigorous attitude for the passive or defensive one, thus making possible the attainment of better results in all lines. It now remains for us to study the technique of teaching through projects, and note the applications to special types of learning.

1. *The technique of teaching through projects*

The technique of teaching through the use of projects comprises four steps. These are, first, planning the original situation so as to stimulate purpose and secure the whole-hearted acceptance of the idea; second, setting the "rules of the game," preferably done by having the pupils formulate the standards of performance; third, guiding the progress of the project so that a high purpose will be maintained; and fourth, helping the pupils to judge their results in the light of their original purpose. We shall now consider each of these steps a little more in detail.

Planning the situation to stimulate purpose. It should be remembered that the chief value of a project, if not its very title to the name, depends primarily upon its being accepted whole-heartedly by the pupil and thus made a purposive activity. Consequently the planning of the situation in which the learner is to discover and choose his productive project possesses an importance which deserves a reiteration of all that has previously been set down in that connection. Careful thought should be given to every element which may appeal to the instinctive interests of the pupils, without in any essential way sacrificing the permanent aims of education. In other words, the undertaking must be both interesting and worth while. In the example described, the planning of the situation was well done. The suggestive article on mosquito extermination, the picture of their own locality free from customary an-

noyance, the appeal of an active change from the routine type of study, the idea of important public service, the challenge to achievement — all these factors were present during that carefully planned science recitation to a sufficient degree to call forth, almost inevitably, the proposal for the undertaking and its enthusiastic reception by the entire class. In order that the pupils may feel the fullest responsibility for completion of a project, the proposal of the undertaking should, if possible, originate with them. This is not an indispensable point, however, as Hosic (*Brief Guide to the Project Method*, p. 30) points out in the following statement:

> Contrary to a too common belief, it matters little whether the teacher prepares the situation and suggests the purpose or whether the pupils hit upon it unaided. The important consideration is that they should clearly grasp the purpose and enter wholeheartedly into it. Obviously the greater the practice of initiative in purposing, the greater the growth will be in this respect. Hence the teacher will welcome the spontaneous suggestions of the pupils and aid in evaluating them. But he will adopt neither a policy of watchful waiting nor one of supine acceptance of whatever is offered. *The teacher will choose his leads.*

No teacher should try to find in this quotation any justification for simply "assigning" a project to a passive group of pupils — "wishing it on them," as one student described a poor attempt which he observed. Pupils are quite willing to accept whole-heartedly an activity proposed by the teacher, if the occasion has been properly planned and there exists between teacher and pupils the friendly, coöperative understanding which was emphasized in Chapter V. The connection between this relationship and the full acceptance of a purpose by the entire class is described by Hosic[1] as follows:

[1] *Op. cit.*, p. 37.

The purpose, if it be that of a group-project, must, however, be *common*. At this point the teacher's ability as a teacher is put to a real test. Success will depend to a great extent upon the general feeling of comradeship and good will which he has been able to establish. For the rest, he must depend upon his good generalship in calling out discussion and contribution from all quarters, and finally committing the group to the project as *their* project.

This topic has been discussed in some detail in order to indicate its unusual importance, and also to suggest the general approach to the inauguration of a new or comprehensive project. The teacher who appreciates what such a situation must mean will realize that no more specific rules of procedure can be safely laid down, but that the approach must be adapted to the circumstances. Moreover, many situations prolific in suggestions for additional projects will develop spontaneously during class discussions, when once the idea is properly launched. The project plan "grows as it goes" and the teacher's task usually soon becomes that of guiding and eliminating rather than of instigating.

Setting the "rules of the game": pupil planning. If a constructive project is to be carried through to successful completion and achieve the most fruitful educational ends, the pupils must be led to set up for themselves definite goals and standards according to which they are to work. This is especially true of a group undertaking, and a preliminary understanding as to the requirements to be met and the responsibilities assumed by each not only will save unnecessary arguments later, but will give tone and dignity to the undertaking in the eyes of the pupils. One even enjoys a game more when the rules are clear and the score is easily kept. To see that such rules are outlined by the pupils at the time of undertaking the project is the second great responsibility of the teacher. The time for

this is during the initial enthusiasm which attends the general acceptance of the proposal. At that time the most exacting standards are proposed and willingly accepted by the students as part of the agreement and working plans. The wise teacher will see that these are not made too high or difficult for the ability of the class, but his apparent discounting of their capacities or seriousness of purpose regularly serves to intensify and confirm their determination to meet the requirements agreed upon.

In our illustrative project of mosquito-extermination, the effect of the teacher's insistence that the class consider all difficulties and assume full responsibility for meeting them satisfactorily was precisely that indicated above. In their desire to prove their earnestness of purpose, very definite requirements as to the amount and quality of work which each division should carry were agreed upon during the preliminary discussions, and the plans for reaching the goals were clarified accordingly. One of the group which took the responsibility of preparing the program for the publicity meeting made this comment later: "We were ready to quit two or three times, but we remembered the kind of program we had promised to put on. We surely didn't know what we were getting ourselves into when we undertook that job." Many of us could echo his final statement in regard to some of our own most highly educative experiences!

The emphasis which has been given to the preliminary formulation of requirements has been intended to set the teacher's responsibility in its proper light. More promising projects, enthusiastically begun, have lapsed into mere trivial or farcical performances, thus bringing discredit upon the whole idea, through lack of such well-understood and cheerfully accepted standards more than from any other cause which has come under the writer's observation.

From the pupils' standpoint, however, the important feature of this step is their animated planning for the carrying on and completion of the activity chosen. The teacher should of course follow closely this planning, raising question when necessary to reveal incompleteness or indefiniteness. During such discussion pupils readily incorporate, as a logical part of their plans, the standards of performance which they recognize as essential to creditable results.

Guiding the execution of the project. In many cases the directive part of the teacher's work is practically done when the first two steps have been properly taken. If the pupils are fully committed in purpose to the carrying out of the project, and have included in their plans adequate provision for maintaining a worthy standard of performance, they should have the fullest opportunity to exercise initiative and resourcefulness in carrying through their plans. Therein lies one of the chief values to be derived. As long as the learner has not lost sight of his goal or exhausted his resources in the effort to reach it, the teacher would better give the pupil the benefit of the doubt, and keep his hands off. There are always, however, certain possible developments during the execution of a project which have important educational bearing, and in such situations the teacher must not neglect his responsibility for turning these into profitable lines.

One such occasion is the very frequent one in which the project develops entirely beyond the original purpose and plans. The teacher may, from the beginning, recognize possibilities which the pupils do not foresee, and wisely allows them to plan for the limited activity which they can immediately comprehend. As the activity progresses new possibilities open which may not be appreciated by the pupils, unless the class situation is skillfully guided to the point where the group recognizes a greater and more

desirable opportunity into which their present activity may be incorporated. Their original purpose is in no sense abandoned, but its achievement is made only a part of a newer and more comprehensive purpose. At all times the guiding influence of the teacher should be directed toward making each activity as rich as possible in educational outcomes and toward maintaining an essential continuity and growth in the series of educational experiences in which the pupils participate.

Re-evaluation of the work as it proceeds. Another situation which may arise, calling for a guiding hand, is that in which an unexpected contingency calls for a re-evaluation of the activity and a re-formulation of purpose. One of the most interesting and productive features of the project is the frequency with which such surprises occur. Sometimes it is wise to allow pupils to attempt the unattainable in order that the discovery of unexpected limitations may result in a new situation, which can be turned to more profitable account for project development than would otherwise have been possible. Whatever may be the cause of the new situation, the teacher should see that its opportunities are not neglected or misused.

An example of this type occurred with a fourth-grade group of pupils who were making toys, to be included in a shipment contributed by a civic club for a children's hospital in the city not far away. Through a misunderstanding as to time of delivery their little collection of toys was not on hand, and the main shipment went on without them. Here was a new problem as to what was to be done. Some lurking wishes to keep the toys for themselves began to be hinted, since a special shipment to the hospital did not seem practicable. The teacher saw both the desirable and undesirable possibilities in the situation. Accordingly she

turned the discussion toward the reason for their getting so much pleasure out of the work while the toys were being prepared. When they agreed that it was the thought of giving pleasure to shut-in children, they were ready for the suggestion that they might find children of that sort in their own town who would be delighted to receive the gifts. The idea was taken up eagerly, and, in carrying it out, the children came in contact with welfare agencies which, in turn, aroused their interest in civic organizations in general. In short, this accidental situation, which at first threatened to spoil the original project, was made, through the watchful guidance of the teacher, the introduction to a most successful series of projects in citizenship.

Helping to judge results. The final step in an undertaking of the project type is the evaluation of results — the judging of the success which has been achieved in carrying through the purposeful activity. If the character of the project has remained unchanged, and the goal clearly set in the original planning, the checking of results may be almost automatic. In such cases the children are usually very just critics, and may be safely trusted to place a rather just estimate on the quality and completeness of their achievements, especially if the entire group may discuss results freely.

In connection with the judging of results, however, the teacher should help the pupils, if necessary, to see that their achievement is not final. In other words, there should be a recognition of unfinished as well as finished phases of what has been undertaken. As was intimated in a preceding paragraph, the project normally leads to a continuous succession of new and inviting activities, each borrowing an added appeal from the last. The guiding influence of the teacher should keep prominent the idea that results of any project achievement are to be judged partly at least

by their usefulness in helping toward other goals which are yet to be attained.

2. *The constructive project and types of learning*

Its contribution to problem-solving. In each of our special chapters dealing with the types of learning, and corresponding lesson-types, the need of motivation was pointed out as furnishing the drive to purposeful effort and whole-hearted participation. As Kilpatrick defines the term, each of the three types of learning may become a project in itself, provided the pupil earnestly purposes to acquire a certain degree of skill, to solve a perplexing problem, or to enjoy, appropriate, or share in a satisfying experience. Under whatever term such activities are classified, the necessity still remains for a motivating situation which will stimulate active interest and induce the learner to determine upon that activity as a desirable one. As a means of providing these motivating situations, the constructive project has such valuable possibilities that many teachers consider it the ideal approach-situation by which to motivate any type of lesson.

The most intimate connection obviously exists between such a project and the problem-solving activity. The reader will recall that the first indispensable step in problem-solving is the discovery of a real need for certain information, essential to carrying out some purpose in hand. The discovery of such a need is practically inevitable in carrying through the project, and usually so many of them arise that the project has been called a "mother of problems." Moreover, the purpose actuating the constructive activity which is interrupted by the perplexity encountered gives a reality to the situation and a vigor to the attack which go far to assure earnest thinking.

Finally, this type of project makes an equally valuable

contribution to the last step in an act of thought, the verification of the conclusion. When the continuation of activity projected is dependent upon the solution of the problem, and the conclusion reached must be reliable enough for actual use in that connection, no incomplete or unverified results will suffice. The conclusion must work under the exacting requirements of a real situation. Sometimes the activity provides for an objective tryout of the tentative conclusion, thereby furnishing automatically one method of verification. At other times a different method may be used, but in any case verification must be adequate and this necessity constitutes a potent aid to good thinking.

Its contribution to attitudes and appreciation. In our analysis of the activities by which attitudes are established (Chapter IX) we found that an essential element is the participation by the learner in an activity which normally called forth the emotional response characteristic of that attitude. The more whole-hearted this participation is, and the more completely the individual loses himself in the spirit of the activity, the more strongly and permanently is the corresponding attitude likely to be established. The learner is not usually conscious of the change that is taking place in his attitudes or appreciations. He is merely engrossed in the absorbing activity to which he has committed himself so completely. The change in his attitudes is a by-product, although educationally it may be far more important than the conscious activity. The contributions which constructive projects may make to this form of learning are so significant as to merit both emphasis and illustration.

A group of pupils from the second grade were planning a celebration of the anniversary of the Landing of the Pilgrims. In order to do this more satisfactorily, they decided to build a log cabin and to make Pilgrim costumes.

By the time they had carried these plans through successfully they had become so interested in pioneer life that they asked permission to continue the idea and try "living as the Pilgrims lived." Corn was planted, crude spinning and weaving attempted, and even the problem of producing home-made soap undertaken. A little lye was prepared from wood ashes, and with this (slightly fortified with concentrated lye by the teacher) they proceeded to make soap in a kettle over an open fire. A tiny maiden in prim sunbonnet who had the honor of stirring the mixture tried first one side of the kettle and then the other in order to avoid the shifting smoke. The writer assumed the rôle of tempter, and asked the group if they did not think that all these inconveniences which they were going through were harder work than the fun was worth. They voiced an emphatic denial, and then little "Priscilla," with smoke-dimmed eyes, added thoughtfully, "But it must have been hard to be a Pilgrim." This sympathetic appreciation of the hardships of pioneer life, and respect for the work of those who conquered such difficulties, constituted the most noteworthy result of the project. This understanding and attitude continued to characterize this group in their history study of later years.

During the study of *Evangeline* with an eighth-grade class, the teacher sought to awaken more interest in the apathetic group by proposing that they collect appropriate pictures from magazines and other sources, and make scrapbooks to illustrate the poem. The idea appealed to them, and, with increasing interest as they continued, the collections grew to impressive proportions. One boy, usually an indifferent student, compiled a book of almost a hundred views, with an appropriate line from the poem neatly printed under each. Apart from the interest in and understanding of this poem, there followed a keener

appreciation of the literature read later. One pupil's explanation, phrased in sincere but ambiguous terms, was that it came from "doing something that made you *see* things when you read poetry."

Its contribution to drill and practice. The most vigorous charge which is brought against any extensive use of projects is that the fundamental skills suffer thereby. It is urged that the incidental practice which grows out of a constructive project is too limited in scope to provide either the range or degree of skill which is socially desirable. Leaving out of consideration, at this time, the controversy in regard to this point, we may assume, with the majority of teachers, that a certain amount of drill or specific practice is necessary. In connection with such practice, there is always the necessity of adequate motivation so as to enlist the most earnest efforts of the learner. Probably the most effective means known to modern school practice for accomplishing this motivation is through some form of constructive project. In this way the pupil is led to discover his need for some phase or degree of skill which he does not yet possess. Through this revelation, he recognizes that the effort will be well expended, is willing to carry on the practice, and thus makes it his purpose to acquire the item of skill needed.

The chief difficulty to be surmounted in motivating drill is in the apparent gulf between the long array of activities to be practiced and the actual things which the pupils wish to do. Even an occasional constructive project, involving important points of skill and revealing the necessity of special practice, will help to motivate related lines of specific learning as well, but most teachers who try this means of approach are convinced of the desirability of having a rich variety of such activities to help make significant the fundamental skills of the curriculum.

Summary. The term *project* is used in varying senses in educational writings, due to the modifications which the concept has undergone in being incorporated into general educational theory. Some educators would call any purposeful activity a project, and thus have at least as many types of projects as there are types of learning. The procedure for all of these had already been outlined, with the exception of the constructive project — a type which practically all educators would agree upon as a project. It is this type with which the discussion of this chapter is concerned.

The project brings into educational practice some features of unique value. It gives a reality to the undertaking, challenges the interest and resourcefulness, and impresses educational values in a way that can rarely be attained through any other form of approach. The technique by which these outcomes may be assured, comprises four steps. These are, first, planning the original situation so as to stimulate purpose and secure the whole-hearted acceptance of the activity; second, setting the "rules of the game," or inducing the pupils to formulate standards of performance; third, guiding the execution of the project so that a high purpose will be consistently maintained under all changing conditions; and, fourth, helping the pupils to judge their results in the light of their original purpose, and also in the light of unfinished but related undertakings.

The constructive project contributes in a prolific way to progress in problem-solving, because of the reality and variety of problems which it produces. It induces a whole-hearted participation in activities which may develop attitudes and appreciations of marked value. It motivates drill and practice upon specific items of skill, by revealing a practical need. In view of its many valuable

contributions to all types of learning, the teacher should give especial care to mastering the technique for the successful use of the constructive project.

OBSERVATION GUIDE ON USE OF PROJECTS

A. *Setting the situation and selecting the project.*
1. Was situation planned so that the project developed spontaneously, or did it seem to be forced?
2. Was project appropriate for group-activity?
3. Was the undertaking of justifiable value in promoting the purposes of education?
   a. List the learning-outcomes that may reasonably be expected to develop from it.
4. Evidence that this was a whole-hearted purposeful activity.

B. *Planning and setting standards of performance.*
1. Were standards included in the planning?
2. Were requirements fully understood and accepted by all?
3. Was planning definite enough to prevent confusion and loss of time?

C. *Executing the Project.*
1. Was vigorous purpose apparent in execution of work as observed?
2. Compare pupil-activity with that noted in other lessons.
3. Was work done more or less carefully and systematically, on the whole, than in other lessons?

D. *Results.*
1. How were you impressed with the educational value of the results in the light of the time consumed?

PROBLEMS AND EXERCISES

1. Select some constructive project, and show how it may be made to contribute in a valuable way to each of the three types of learning.
2. Many educators have identified the project closely with the problem in teaching. One of them has said that the project is a problem and the mother of problems. Show why the two are likely to be very closely related.
3. How many of Kilpatrick's four types of projects have received previous consideration under other designations in this text? Tell what these designations have been in each case.
4. Why is the task of "setting the situation" out of which a project is to develop such an important one? Give an illustration to show the importance of careful preliminary planning in this respect.

5. Explain why general agreement upon the "rules of the game" as a part of the pupil-planning is essential to the success of a project. Is this a responsibility mainly of the preliminary planning, or may it safely be left to develop under directed discussion?
6. Show how the use of projects is especially well adapted to correcting and preventing a defensive and non-coöperative attitude on the part of pupils in the recitation.
7. Give an example of a project of which the pupils would be ready at first to comprehend and undertake only a minor part. Indicate at what point especial care would be needed to guide them into a discovery and acceptance of the larger undertaking.
8. To what extent is it true that the results of a project-undertaking are likely to be more fairly and correctly judged by the pupils than those of other kinds of school work? Give reasons for your opinion.
9. Give examples of specific attitudes and appreciations which could probably be better acquired through projects than in any other way. Why is the project so well fitted for this purpose in such cases?
10. Suggest at least three projects which would be particularly useful for motivating drill and practice on fundamental skills.

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CHAPTER XVI

DEVELOPING SOCIAL RESPONSIBILITY

The need of positive forces in conduct. In the chapter in which classroom organization was discussed as an important part of the working conditions affecting learning (Chapter V), it was pointed out that the method of maintaining control should not only be able to provide immediate order, but should also be in harmony with the principles upon which permanently satisfactory, self-directed conduct must be based. The social factors in the school environment which the child encounters should at all points be such as to dispose him favorably toward the forms of social control under which he is to live in later life. In other words, the life of the school should be a very real life for the child, abounding in opportunities to develop gradually and in due order the social adjustments necessary to responsible participation in group activities, so that there will be no pronounced break when he takes his place in the larger groups of adult life.

The teacher's planning and direction of every phase of school work should take into account the importance of this factor. Accordingly, this element was taken up in the preliminary discussion of general conditions in the hope that the reader would visualize every learning situation presented later as having a background characterized by a wholesome, coöperative relationship between pupil and teacher, and between pupil and pupil. The pupil's part in this relationship, it should be kept in mind, is as much a matter of learning as is his acquisition of any other desirable mode of response. Our intervening study has shown us that satisfactory social conduct and participation

must be the result of appropriate habits, adequate knowledge, and favorable attitudes, covering at least the type of situation which the individual normally meets. This means that the school activities must provide for the learning of these positive elements to supplement the more or less mechanical regulations already considered as a phase of general organization.

The relation of social conduct to other learning-activities. A question may be raised as to why this type is not primarily a consideration of subject matter, belonging among the problems of the curriculum and having no especial place in the field which this book has attempted. While there are many competent educators who would make curricular provision of this sort, and reserve a definite place in the daily program for systematic instruction in conduct, practically all agree that the most satisfactory results are not obtained by relying upon such means alone, but by making the development of good conduct a phase of every school activity.

A desirable member of a community does not have certain regular hours in which he practices being a good citizen; such behavior should be an inseparable element of all that he does, whether in his round of business or in his leisure pursuits. Similarly, the pupil's growth in social responsibility must come, not from a series of responses during a special period, as is the case with arithmetic or geography, but from his responses to every situation that arises to which there is a social angle. Consequently the teaching of conduct will be an incidental feature of practically every teaching-activity, and as such belongs among the considerations which should be accorded due weight in connection with any phase of teaching technique.

The social influences of the school. One of the most

serious shortcomings of the traditional fact-learning school has been the failure to realize and accept its responsibility for educating "the whole child." While teaching was directing all its major efforts at administering its daily prescription of facts and skills, with enough disciplinary measures to keep the patients reasonably docile, there seemed to be only a hazy realization that the more important matters of health, social attitudes, and similar factors of lifelong significance were being shaped for better or worse through those same experiences. When forward-looking educators insisted that these be given due consideration in the school, they were not bringing in new responsibilities for the teacher; they were merely asking honest recognition and intelligent direction of things that were already going on in an undirected and often undesirable manner.

The statement was made in an earlier section that the child's attitude toward authority and government is likely to be determined by his own experiences with them in the place where he meets them most closely, that is, in the school. In this way he may come to feel that governmental authority is an officious, unfeeling, autocratic thing, to be outwitted and evaded whenever possible, or that it is, on the other hand, a friendly guardian of group-welfare, protecting the legitimate activities of the individual from unwarranted interference. The first-hand experiences out of which one or the other of these impressions is derived outweigh the statements of the textbooks in regard to the nature of government. Similarly, the social attitudes and conduct in general which develop from the sum total of school experiences are vitally important educational outcomes, demanding all the thoughtful care which the teacher can give to their guidance. In order that we may better understand how proper directions can

be given to the formative influences available, we shall need to note some of the factors involved in socializing the individual.

The vital elements in socialization. All will agree that habits play an important part in the determination of social conduct. An adequate knowledge of the relationships and responsibilities attendant upon life in a highly organized society is also essential to the intelligent guidance of conduct in situations where choices must be made. The factor, though, which gives vitality and character to conduct, which motivates the practice and maintenance of habits, and which provides the feeling of value controlling choice, is, in every case, an emotionalized element. The social attitudes and appreciations which predispose the individual toward worthy decisions and practices are acquired through the same kind of learning-activity as we found in other outcomes of this type, that is, through participating in experiences in which certain standards of behavior afford him satisfaction, and enlist his sympathies definitely in favor of conduct in accord with those standards. The only respect in which the learning-activity here may seem to differ from that in the typical lesson for appreciation is in the fact that the participation is much more often real than imaginative, and the stimulating situation frequently involves the entire school organization rather than simply a class recitation.

The teaching problem becomes, then, one of utilizing the possibilities of the school as a social environment wherein the pupil may be led to make such adjustments and identify himself with such principles of conduct as will function in situations which call for the assumption of social responsibility. Nor is it enough in this connection to have the pupil appreciate the qualities of loyalty and helpfulness merely as such. As Bobbitt, in his *The*

Curriculum (Chapters XI and XII) has shown, these qualities are commendable only when they are employed in behalf of the general good, and become disrupting and vicious when their exercise is directed solely toward furthering the selfish interests of a particular gang, clan, or clique. As a preventive of anti-social perversions of these qualities, the child should be led to practice them as a vital part of his emotional participation in large-group activities. The largest groups in which the pupil has regular opportunities for direct participation are his class, and his entire school. The group-attitudes and evaluations which may be developed through coöperative activities make up what is known as school spirit. Any plan for developing social responsibility must give careful consideration to this potent influence.

The function of "school spirit." As has just been intimated, the vigor and effectiveness of school spirit depends upon the extent to which the individual pupils have identified themselves in feeling with the school as a social unit, through which their interests, their pride, and their desire for significant activities all find a satisfying form of expression. When such spirit is low and unwholesome one finds many of the pupils holding aloof from genuine participation, regarding the school and its activities as an irksome infliction to be evaded whenever possible, and seeking their real life and satisfactions either outside the school or in trying to outwit and annoy the school authorities. On the other hand, a healthy school spirit is shown by the evident loyal pride with which the pupils speak of *our* school, extolling its athletic prowess, its standards, its records of achievement, and its activities. The personal satisfaction exhibited in such cases leaves no doubt as to the fact that the individual has identified himself emotionally with his group.

The value of this large-group loyalty as a basis upon which social responsibility may be properly developed can hardly be overestimated. Disciplinary problems drop to a minimum, and it is not difficult to induce offenders to undertake self-correction if they have at heart any regard whatever for the good name of the school, and are thus willing to discuss their offense in the light of the general welfare. While pupils may not use the trite phrase, "for the honor of the school," nevertheless the idea exerts a potent influence in promoting unselfish endeavor, and in revealing to them the broader social responsibilities involved in their choice of conduct.

Cubberley, in his *The Principal and His School*, emphasizes the importance of a good school spirit as essential to meeting the enlarged responsibilities of the school, due to changing social conditions. The so-called extra-curricular activities and wholesome rivalries between schools which stimulate school spirit seem to him to serve a valuable educational purpose, and he sums up (p. 317) the situation as follows:

> To remedy some of these defects of our modern city life, to give pupils some useful education through doing, to create for them good standards and habits, to awaken the spirit of fair play, good sportsmanship, and high ideals of honor and righteousness in the social and civic life, are new opportunities and obligations of the modern school. Our school organization and instruction cannot be divorced from these essentials without the loss of valuable possibilities. The cultivation of a strong and healthy and loyal spirit, by some such means as are indicated above, helps greatly not only in control, but, even more important, in preparation for civic usefulness and social participation.

Means of developing social responsibility. While the leadership in building a wholesome school spirit belongs to the principal, yet it develops upon the classroom

teacher to lend sympathetic coöperation in any movement looking to that end. Certain of the factors contributing to this development should be understood by every teacher, not only for intelligent coöperation with the principal and other teachers, but also for the purpose of building up through the same means an effective group spirit within the classroom. While this latter does not represent as large a social unit as the entire school, and in that respect is inferior in promoting the broadest sympathies, it nevertheless concerns so intimately a large part of the daily life of the pupils that the cumulative influence possesses great possibilities. Consequently, the building of social responsibility is a primary concern of the classroom teacher, and some of the most important factors available for that process belong immediately among classroom activities. In our examination, therefore, of these factors, we may well begin with the classroom opportunities and note how they may be utilized, and then pass to types of larger group-organization.

1. **Utilizing classroom opportunities.** One of the most effective ways in which pupils can be given practice in the type of activity most favorable to the development of social responsibility is through participation in a genuinely socialized recitation. But, as was emphasized in Chapter XIII, the socialized recitation is not merely a form which can be adopted, but an achievement which comes from bringing about a changed attitude on the part of the pupils. In that chapter, also, there were offered suggestions as to procedures favorable to this end. The point which should be made at this time is that the inauguration of any form of recitation procedure looking to increased pupil-responsibility must either be preceded or accompanied by some appropriate *teaching*, at least to the extent of preparing a favorable mental set. A skillful teacher may work for

weeks with a difficult group, gradually preparing them for increased recitation responsibility by building up the attitudes which observation shows to be weakest and not likely to prove a trustworthy basis. In Chapter XV of Parker's *Types of Teaching and Learning* there is a detailed description of such teaching by a Miss McGuire, who had found a seventh-grade class unreliable because of the prevalence of cheating. Her work, as there described, is justly termed a fine example of "courageous, patient, persistent, good-natured moral training." She studied the situation a whole month before she began the "teaching" directed at that evil, and then made her treatment of the problem a part of every recitation.

A further illustration of the manner in which classroom opportunities may be utilized to lay a better foundation for right social attitudes is furnished by an incident which occurred during the writer's own schoolboy days. The boys in our seventh grade had developed some unmannerly traits of behavior, and when a new teacher-principal took charge he found some pronounced tendencies among them to annoy other pupils, and to take apparent pride in such conduct. He was a man of some experience, and soon established an effective type of discipline such as would have satisfied any other teacher we had ever had. He must have realized, though, how little responsibility the boys really felt for improving conditions, and so he planned accordingly. The opportunity for which he was probably waiting came one day in the grammar recitation. We were analyzing sentences, and came to one quoted from Emerson which ran, "Defects in manners are usually defects in the finer perceptions." When the sentence was read, he turned with an inquiring look and asked the class what it meant. No one was sure, but the class welcomed a respite from analysis and the dictionary was called into

use. In the discussion which followed he skillfully made clear the idea that failure to recognize and regard the rights of others was an indication of inferior or undeveloped intelligence. He did no moralizing, but seemed himself profoundly impressed with the significance of the thought. As he left us to our own conclusions, I remember some thoughtful looks on the faces of boys who were considering, for the first time, the possibility that the behavior which had been cultivated as an assertion of superiority might be interpreted as signifying exactly the opposite.

On subsequent days other occasions were found for discussing worthy qualities relating to social conduct, although I do not recall these with the vividness which somehow preserved the details of the first incident. Memory is clear, however, on the fact that these discussions were always made interesting and never seemed to be preaching, and also on the enthusiasm with which the boys received his proposal, made some weeks later, that "playground lieutenants" be chosen to share in the responsibility of seeing that all enjoyed their just rights on the playground. The honor of wearing the lieutenant's badge for a week was somehow made to seem a proud distinction which anyone might covet. In a similar way, other forms of participation in situations involving responsibility were added, with the pupils always eager to receive them. The school in time became known for its fine spirit and high standards. It was all carried out so unobtrusively that very few of the pupils ever realized, probably, how carefully those classroom discussions must have been planned or how directly they prepared for the more spectacular activities which confirmed, through practice, desirable social attitudes. Although this teacher went to his reward without ever hearing the expression, socialized recitation, his practice of utilizing every recitation oppor-

tunity to prepare his pupils for more responsible participation in character-developing situations was based on a sympathetic understanding of that phase of learning.

2. Assemblies and programs. Every teacher is called upon more or less frequently to arrange a program to be given either before the class or before the school assembly. In either case the situation holds valuable possibilities from a social standpoint. The feeling on the part of the participating pupils that they are responsible to the larger group for a creditable performance is a normal reaction, and should be capitalized for its educational value. At the same time the character of the program itself should be worthy of this feeling, and should accentuate the satisfaction of the children over the service they are rendering.

The program presented before either the larger or smaller group can best fulfill its social possibilities when it combines group enjoyment and group unity with some material which influences group sanction in favor of wholesome social standards and interests. Group manners and behavior, avenues for the expression of school spirit, and unifying school "creeds" and codes are all matters which can be presented much more successfully when reinforced by the contagion of group responses. The assembly also offers an unusually favorable occasion for the presentation of material of a civic or patriotic character. Some phases of these matters, especially those dealing most directly with standards and policies for group activities, can best be put before the assemblance in a simple, earnest talk. As a rule, however, it is wise to remember that the necessary emotional participation is surest when the pupils have an active part to play, and that the general assembly or the morning exercise will usually fulfill their functions most successfully when generous provision is made for contributions by pupils.

The share which the pupils take in these programs or exercises may be varied, but should deal, whenever possible, with material of social significance to all. Above all, their participation should never be allowed to lapse into formal or perfunctory performances without life or spirit. The way in which a certain sixth-grade teacher corrected this tendency, and at the same time introduced an active element into the morning exercises, is illustrated in the following incident:

In this room it was the custom, as it was throughout that city, to repeat the pledge of allegiance to the flag as a part of the opening exercises. The teacher was disturbed over the fact that the words had apparently no vital meaning to the pupils, and were mouthed over in a worse than useless manner. Accordingly, she planned with the pupils a special program on the meaning of the pledge. The parts were all written and played by pupils, each representing the careful result of the efforts and deliberations of a particular group. The opening showed Uncle Sam and a small boy on the stage. The latter was working hard over some lines, and Uncle Sam asked him what he was doing. "I am trying to learn the pledge of allegiance, but the words are pretty hard to say," was the reply. "Other people than you have found them hard to say," replied Uncle Sam, "and I think you will understand them better if some of my boys tell you how hard they were to learn." Then a boy appeared in Continental dress who took the first two phrases and told of the seven years of struggle and hardship which were endured before Americans were sure they would have a flag and a republic to which they could pledge their loyalty. Next appeared a boy in Civil War uniform who declared that he brought three of the hardest words that America had ever tried to learn — "one nation indivisible." He then told of the

cost in strife and suffering and heartaches during the years of effort that were spent before all America could learn to say those three words. Finally there came a boy dressed in the World War uniform who told impressively of the way in which America had tried to prove the meaning of the final six words. Then Uncle Sam turned dramatically to the audience and said, "Only good Americans can learn those words well. Are you brave enough and loyal enough to try to say them with me?" The fervent response was so thrilling that the little play was repeated before two other schools, each time leaving the hearers with a new appreciation of the significance of the pledge.

Such contributions as the one described need not call for elaborate effort by the pupils, but they should be genuine and sincere in the emotional quality which pervades them. The resourceful teacher will find many opportunities to vitalize what would otherwise be mere formalities of observance. The assembly exercises will not only be improved thereby in the way of promoting a better social spirit in the group, but the individual pupils who participate will be learning additional lessons in the satisfaction of service.

3. **"Extra-curricular" activities.** At the very beginning it should be pointed out that the expression, extra-curricular activities, is a misnomer, and is used here only because there is no satisfactory term to designate certain activities not listed in the traditional course of study, but which are in reality an indispensable part of the work of any school which accepts its social responsibilities. These represent, in general, the voluntary undertakings of the pupils, and are to them the real life of the school. On that account they put into such activities their fullest initiative thought, and enthusiasm — factors of the utmost importance for effective learning. In fact, many teachers find it difficult to understand why certain pupils show such com-

petence and earnest effort in these activities, in comparison with their mediocre achievements in the assigned lessons. In the best modern schools the distinctions between such activities and regular class work have practically disappeared, and the abundant self-activity generated by these attractive undertakings is so guided and related to the other tasks of the school as to make an inter-related unity of school life. This viewpoint was sufficiently emphasized in our discussions of interest and of projects, and our concern at the present time is with the possibilities of these activities as a means of developing social responsibility.

The characteristic forms taken by these so-called extra-curricular activities are the organization of clubs, inter-school contests, publication of a school paper, dramatic performances, and school picnics or parties. The obvious feature of them all is the predominantly social character, and their correspondingly attractive possibilities for developing that type of responsibility. The eager enthusiasm with which children enter into these activities, and their willing acceptance of any reasonable standards which are to be maintained, make these opportunities almost ideal for guiding the establishment of acceptable habits, considerate thinking, and commendable attitudes in connection with the typical situations which characterize the practical and recreational phases of life in a social environment. There is no better way for the school work to carry over into the concerns of everyday life than through such activities. They frequently involve no small degree of business management, and require a care in planning comparable to many responsibilities of adult life. At their best, they may lead the participants to adopt standards of social conduct, civic responsibility, and business reliability of the highest permanent value. On the other hand, if they are discouraged or neglected there almost

certainly ensues a break between the school and what the children consider the real affairs of life. To the teacher who is unwilling to take the child's viewpoint, and enter into the spirit of these undertakings, they may seem to call for extra effort, but the gain in the way of more willing coöperation from the pupils in all lines of work would compensate for this, even if the activities were not so distinctly an almost indispensable means to adequate training in important phases of conduct.

4. Special types of organization. The importance of giving preparation for and practice in all practicable lines of social and civic responsibility has seemed to many educators so great as to justify special forms of school organization in which the pupils are entrusted with the school government itself — at least in so far as it is related to conduct and regulation of pupil affairs. This appeal to the sense of responsibility has some unique advantages, especially in the case of pupils in the sixth to the ninth grades, when the interest in the social environment is keen, and some of the most significant adjustments to organized control and to social conventions are being made. On the other hand, from the very nature of the teacher's responsibilities, the surrender of authority to pupils must be more apparent than real and must involve a fiction which detracts from the complete sincerity of the arrangement. Van Denberg, in his *The Junior High School Idea*[1] (p. 328), puts this objection very fairly when he says:

> The valid criticism of many who refuse to put in operation any system of pupil self-government is that all such systems are more or less patent frauds perpetrated upon more or less unsuspecting pupils. Such critics hold truly that if it ever comes to a showdown the pupils must learn that they cannot in honesty and in truth be permitted to govern themselves.

[1] Henry Holt & Co., publishers.

> The more elaborate the system of self-government the more complete is apt to be its collapse, when, sooner or later, a case appears where the will of the pupils as expressed by their elected representatives comes directly into opposition with the will of the principal, his teachers, or the higher school authorities.

After noting this objection to nominal plans of self-government, Van Denberg emphasizes the importance of pupil-participation in the governmental system of the school, and then describes the plan in use at the Speyer School for securing the benefits and advantages sought in pupil self-government, without the risks and insincerity involved in turning over to pupils authority to exercise the legal prerogatives of the teacher without possessing either the maturity or training which experience has shown are essential to such decisions. The plan outlined is a good one in respect to the most vital feature of the entire problem of training for social responsibility; that is, making the responsibilities gradual and cumulative, so that the pupil may grow accordingly, rather than attempt the perilous task of undertaking authority out of proportion to his maturity. Accordingly the Speyer plan provides for fifteen types of leaders, so that every pupil may hope to qualify for some kind of leadership responsibility, and develop under the practice of it. The responsibilities of each pair of leaders centers about some item of the classroom, such as attendance, home work, supplies, textbooks, decorations, or some similar simple but essential feature — each quite within the range of their maturity, and affording genuine training in the exercise of responsibility.

The writer is in entire sympathy with the aspirations of those who favor some plan of self-government, but personal experience inclines him to believe that its most effective application is to the autonomous control of smaller

group-undertakings. His conclusions in this regard have been previously stated in these words:

> It is doubtful if any plan for allowing pupils to govern each other to any very general extent is worth the effort required to keep it in satisfactory operation. Immature children are hardly able to keep personal considerations from influencing their judgments and are incapable of the constructive teaching which should be a part of such control. Since the leadership in so-called pupil-government must be supplied, directly or indirectly by the teacher, whom the community holds legally responsible for school control, it is usually better to retain frankly that control, rather than to carry on the difficult and precarious fiction of pupil-government. The latter form has, however, a legitimate use as an occasional demonstration and recognition of high morale, and the stimulation of the special event, combined with wise direction, can make it a valuable expedient for impressing certain phases of citizenship. As a regular thing, the pupils can get their experience in the responsibilities and problems of group control most satisfactorily through school clubs, group projects, and similar subordinate activities, where mistakes or even failure may imperil the undertaking involved without seriously affecting the general school organization.

Probably the best and most practical plan of assigning responsibility for leadership and control among groups of pupils is that used by the Boy Scout organization. Here the responsibilities for the activities of a small group or patrol is vested in a scout who has earned the honor, but who is in turn responsible to the general leader or scoutmaster. The latter does not evade, belittle, or give away his authority, and best holds the respect of the boys by retaining the leadership which belongs to maturity, but the system provides abundant responsibility for every boy as rapidly as he proves his capacity for it, and also provides for continuous participation in practical activities of an admirable type for building both habits and attitudes of a high order. Some of the most successful school plans for

developing a coöperative attitude toward authority, with every one working to prove his worthiness for leadership by such coöperation, are based on modifications of the Boy Scout idea. Every teacher will find it worth while to study the principles underlying the Scouting and Camp-fire systems of training.

Summary. Worthy social conduct and the development of responsible citizenship are the result not merely of effective school discipline, but require certain positive factors which are as much a teaching duty as any other phase of education. The school itself provides a social atmosphere in which the pupil lives, and the adjustments which he makes to organized control and responsibility in that atmosphere will have a potent effect on his after-life. It becomes, then, the duty of the teacher to direct the social influences of the entire round of school activities, so as to lead the pupil not only to form clear and sound judgments in this regard, but to practice the habits and participate sympathetically in the responsibilities essential to commendable social conduct.

The most general factor to be considered is the school spirit, and its encouragement along satisfactory lines. Closely related to this is the classroom "teaching," on wisely chosen occasions, which prepares the pupils, through widening their social appreciations, for the safe assumption of responsibility. Other factors, of which full use should be made, are assembly exercises, special clubs, civic campaigns, pageants and programs, and modifications of the school organization, all with the purpose of inspiring the pupils to willing coöperation in group activities, and thereby learning through the satisfaction attending the practice of worthy conduct to build its standards permanently into their characters.

OBSERVATION GUIDE ON SOCIALIZING ACTIVITIES

A. *School spirit.*
   1. Note evidence of group loyalty.
   2. How many pupils seemed individualistic or small-group-minded, instead of showing a broad school spirit?
   3. What means were employed to promote broader loyalties?

B. *Pupil responsibility.*
   1. List activities of more than individual concern for which particular pupils were responsible.
      a. What was the apparent basis of assigning responsibility?
      b. Did performance indicate growth in competence?
   2. What forms of leadership among the pupils were encouraged?
      a. Character of coöperation with leaders.
      b. Was leadership democratic?
   3. Evidences of preliminary special teaching to prepare pupils for leadership or coöperation.
   4. Extent to which recitations were socialized.

C. *Organization of special activities.*
   1. How was organization adapted to promote citizenship?
   2. List any special features of social significance.
   3. Evidences of outside activities, and the nature of their contributing influence.

PROBLEMS AND EXERCISES

1. Show wherein the traditional conception of school discipline fails to provide adequately for developing moral social conduct.
2. Discuss the similarities and differences between teaching right conduct and teaching other kinds of outcomes.
3. In what sense is it true that the teacher, even in spite of her wishes, is constantly teaching her pupils some kind of social conduct?
4. In what order would you rank habits, attitudes, and knowledge as factors in determining social conduct? Give the arguments supporting such a ranking.
5. Explain and illustrate what is meant by "large-group loyalties" as a basis of worthy social attitudes.
6. Why is a vigorous and wholesome school spirit, in the light of modern conditions, a matter of unusual educational importance?
7. One principal who had succeeded in establishing an unusually successful system of pupil-participation in school government, stated that it required three years of "teaching" to prepare the pupils for it. Tell what you think must have been included among the specific outcomes of that "teaching."
8. List in the order of their importance the various functions which school assemblies should have. How many of these have direct bearing on the social attitudes and conduct of the pupils?

9. In what ways may the so-called extra-curricular activities be more valuable than some regularly included in the course of study? Is there any danger that these would lose some of their appeal to children if they were incorporated into the school requirements?
10. What is the difference between pupil self-government and pupil-participation in government? What, in your opinion, are the relative merits of each?

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CHAPTER XVII

ADJUSTMENTS FOR INDIVIDUAL DIFFERENCES

Nature and importance of the problem. The general fact that individual pupils vary widely in ability to do school tasks has always been recognized. It has been only within the last quarter century, however, that systematic studies have been carried on to determine the precise nature and extent of these differences, with corresponding attempts to discover effective means of adjusting the school instruction to the needs as thus determined. By the use of standardized methods of measuring the individual performances of all the pupils in the grade, it is not unusual to find that the best pupils in the fifth grade, for example, read three times as rapidly as the slowest pupils in that same grade, and at the same time comprehend better the whole of what they have read than their slower classmates do the small amount which they have read. Similarly, the best pupils in that grade will do twice as many exercises in addition or multiplication as the poorest pupils do in the same length of time, and usually with a greater degree of accuracy as well. Corresponding differences are found in connection with spelling, handwriting, and other subjects in which the rate and quality of the performance can be readily measured.

With such variations as these to be found in the average classroom, it is of course unwise and unfair to demand the same result within a given length of time from all the pupils of the group. The relative simplicity, however, of giving a single assignment to an entire class, the apparent economic and administrative necessity of maintaining fairly large classes for each teacher, the reluctance of many

teachers to experiment with innovations which seem to require more extended planning, and the seductively business-like precision which seems to pervade a sharply graded school system, have all combined to preserve the delusion that all pupils in a given grade are capable of uniform achievement, with the more vicious fallacy that the teacher is impartially "treating them all alike" by demanding the same daily tasks of all. As a matter of fact, a uniform requirement means only half-work for part of the class, and impossible effort for another part. Thus the teacher who tries to strike a fair average in the assignment is really unfair to the brighter pupils by depriving them of any challenge to capacity effort, and equally unfair to the slow pupils by depriving them of any opportunity for genuine mastery, and corresponding educational growth. Some teachers, realizing the plight of the latter group, direct their main teaching efforts at the slow pupils, and justify their course by declaring that the "bright ones will learn anyhow." Others, with equal logic but less compassion, allow the stronger pupils to absorb the chief attention and set the pace, on the theory that those who cannot meet such a standard should drop back into a grade where they can do the work. In reality none of these three plans is fair or democratic, in the sense of granting to all pupils equal opportunities for the best educational progress of which they are individually capable.

Equalizing opportunity. When we remember that successful learning is dependent upon several factors, such as a situation or undertaking of sufficient significance and interest to enlist a vigorous response, and yet within the range of the learner's capacity, appropriate preparatory experiences, and a favorable mental set, we must realize that there can be no genuine equalizing of opportunity for learning in the classroom unless the factors are made

equally favorable. The most practical point at which a beginning may be made is in the matter of adjusting requirements to the capacity and rate of learning of the pupil, so that there will be made possible the satisfaction and growth attendant upon real mastery. Without such an achievement interest is not likely to survive, and, moreover, the learner is inadequately prepared for the next step in the work. At the same time, recognition must be given to the problem arising from wide divergences in temperament and tastes. These have profound influence upon the interests, mental set, and responses to varying methods of teaching. The child who is nervous, timid, self-conscious, high spirited, or over-sensitive is in reality being denied a fair chance by the unsympathetic teacher who justifies a lack of consideration by the shabby claim of "treating them all alike." The flimsiness of this defence is apparent when one reflects that the justification of teacher-activity must always be sought in *the responses of the individual pupils.* The teacher who is alert for the effects of various modes of treatment will quickly note the extreme diversity in the ways various pupils are affected by the same treatment, and will strive to encourage the timid or sensitive child, to soothe and quiet the nervous one, to display calm good humor to the irritable pupil, and to spur on the loafer, all to the end that there may be produced throughout the group the most earnest and undistracted effort, the most confident and willing participation, and the most cheerful and happy spirit. In no other way can true equality of opportunity be attained from the standpoint of the varying temperaments and attitudes of the pupils.

The problem of adjusting the difficulty and rate of required work to the varying capacities of pupils is one which has been approached from various angles. An evaluation

of the various proposals for solving this problem can be better attempted if we examine some of the considerations which are involved.

Difficulties to be met. As soon as the teacher attempts to depart from the familiar procedure of uniform lessons and assignments, certain difficulties are at once encountered. Recognition of individual differences and complete adjustment of teaching practices to provide for them would, if carried to the logical extreme, mean individual instruction, but if the time of the normal school day is equally distributed among even thirty pupils, there are approximately only ten minutes of instruction time to be allowed to each, and at least a part of this must be spent on the details of an assignment which is to furnish adequate material and guidance for his learning-activities during the remainder of the day. Under such a plan, also, there is danger of losing the social benefits of class discussion and the community of interest which grow out of group undertakings, and some provision is needed for supplying these values.

If the plans for adjusting school requirements do not go so far as that just mentioned, but seek to retain some of the essential forms of group instruction, there are corresponding difficulties encountered. Chief among these are the problem of selecting the groups so that the individual differences within each shall be so slight as to remove the chief objections already noted, and the second problem of arranging the work and organization of the various groups so that a pupil may be transferred from one to another without serious loss whenever his changing needs seem to require it.

In spite of these difficulties attending any plan of adjustment, progressive educators feel that they are small in comparison with the injustice and waste of the familiar

types of uniform, lock-step classification and instruction. Consequently some very definite proposals have been offered as practical solutions of the problem, and these have been tried out, in a more or less comprehensive way, under classroom conditions.

Proposed methods of solution. The plans which have been worked out in the attempt to realize satisfactory adjustment for individual differences fall into two rather distinct groups. The first group includes the proposals of those who believe that the need justifies a radical reorganization of educational procedure, and which in consequence provide for the practical abolition of class-teaching, or "mass instruction," as they prefer to term it. In the other group may be listed less radical plans, in that group instruction is still provided, but modifications are introduced by which the inequalities of opportunity are minimized. In the following sections the most prominently advocated plans in each group are examined, so that the reader may note the essential characteristics of these proposed methods.

1. *Plans involving radical reorganization*

Individual instruction: the Winnetka Plan. Some educators have inclined toward the belief that the only sure way of eliminating the inequalities of uniform class requirements was to abandon class assignments altogether and introduce individual instruction. One of the first places at which such an arrangement was put into operation was Pueblo, Colorado, and this was given much publicity as the Pueblo Plan. Later, President Burk of the San Francisco Normal School developed a much more complete scheme of individual instruction for his training school, and this plan has been continuously followed there down to the present time. The plan was not looked upon with

any great favor by public school officials, however, until Washburne, a former assistant to Burk at San Francisco, became Superintendent of Schools at Winnetka, Illinois. He introduced Burk's plan of individual instruction throughout the schools of that city, making such modifications as the changed conditions seemed to require. Wide publicity has been given to this method of instruction under the name of "The Winnetka Plan."

Under this plan an attempt is made to meet both the individual and social needs of the pupils by dividing each half-day into two parts. One of these is devoted entirely to individual instruction in the common facts and skills which all should acquire, but with each one traveling at his own pace. Washburne, in the *Twenty-Fourth Yearbook of the National Society for the Study of Education* (Part II, p. 80), describes this phase of the work as follows:

> During the time devoted to individual work in the common essentials, every child does his own job. If one steps into a "fourth-grade room," for example, he may find each child doing a different thing. One is just finishing third-grade arithmetic, another has begun compound multiplication, another is in the middle of long division, while still another may be beginning fifth grade work in fractions. A child may be doing fourth-grade arithmetic during one period, but a few minutes later, in the same room, is doing fifth-grade reading.
>
> There are no recitations. Each child prepares a unit of work, checks his results with an answer sheet, and goes on to the next unit. When he has done a small group of units — an amount of work which may have taken him three days or two weeks — he tests himself on this group: if he finds that he has mastered it, that his practice test is 100 per cent right, he asks the teacher for a real test. This test the teacher corrects. If it is not 100 per cent, the child practices again on the weak points shown by it, then asks for a re-test. When he shows the teacher that the group of units called a "goal" in Winnetka is mastered, he works on toward the next goal.

During the part of the day allotted to group activities there are no fixed requirements, no tests, and no uniform "goals." The pupils may engage in dramatizing some historical event, participating in committee work, or sharing in other forms of socializing activities. The purpose of this is to supply the social element which might be lost in strictly individual undertakings, and yet to allow the special tastes and aptitudes of the pupils an unrestricted opportunity for development. As Washburne puts it, in the article just quoted:

> The children must learn how to make up for their weaknesses by using the strength of others, and how to contribute their special abilities to the undertakings of the group.

Any effective use of this plan requires that all the pupils be supplied with instruction sheets and outlines for guidance as they work their way through the successive sections of the required material. The preparation of such work-sheets for use in the San Francisco State Teachers College, and in Winnetka, has made it possible for other schools to try the plan by using this material. Numerous trials along this line are being made in an experimental way, and careful studies are being made of results. Before attempting to discuss the advantages and weaknesses of this plan, it is well to compare with it a similar scheme known as "The Dalton Plan."

The Dalton Plan. This plan derived its name from the fact that it was originated in the Dalton, Massachusetts, High School, about 1911, by Miss Helen Parkhurst. While it attracted some notice in this country, its first real popularity was in England, where it was widely adopted. From there it spread to the Continent, and it has had wide vogue in Europe and even in the Orient. More recently it has aroused greater interest and trial in America.

Miss Parkhurst describes it as a "laboratory" plan, and states that it is applicable to school work from the fourth grade up. In each subject the pupil and teacher plan a month's "job," covering the normal work for that length of time. Similar assignments are arranged for the other subjects which the pupil is carrying. A certain room or laboratory is designated for each subject, and whenever a pupil wishes to work on that subject he goes to that room, where all needed reference materials and equipment are to be found and where every one is working along the same line. Group discussions and coöperative study are encouraged, as pupils work through their contracts and prepare for the tests which are to prove the completion of each section. A pupil is free to work for as long or as short a time as he prefers on each subject, but when his job in one subject is completed he is not allowed to continue that study until all his other contracts for that month are completed. Day-to-day units are designated, and various means are used to induce pupils to maintain uniform progress in their different subjects, and to use the time saved on one to apply on another more difficult job. Just as in the Winnetka plan, pupils may progress as rapidly as they are able. If fifteen days are sufficient to complete all of the month's assignments he begins the next allotment, and may gain two or three months during the year.

Both the Winnetka Plan and the Dalton Plan have some marked advantages in the way of permitting a pupil to advance at the rate best suited to his ability. Burk especially stressed the saving in time for the majority of pupils, and the statistics from San Francisco and Winnetka both indicate that somewhat more than half the pupils complete the required work of a grade in less than the normal time. Washburne emphasizes, however, the opportunity of enriching the curriculum through activities in-

troduced in the marginal time saved daily, and does not greatly stress the accelerated progress by years. Both plans recognize the need of socializing activities, but attempt to provide them in different ways. The Dalton Plan uses group study for this purpose, while the Winnetka Plan employs an unrestricted portion of the day for developing this feature.

The reader should remember that both these plans are in use in only a few places, and that any very wide adoption of them, even in a modified form, is still problematic. Apart from the administrative questions involved, upon which there is not yet general conviction among practical educators, the most serious doubt exists in regard to the attainment of important social values from a number of the school subjects. In history, civics, geography, and literature, some of the most significant outcomes are derived from the day-to-day class discussions, directed by the teacher during the recitation period. Many educators believe that the individual study of facts regarding these subjects in accordance with an outline is no equivalent for the animated group participation under wise direction, which brings out learning responses such as only a group situation could stimulate. It is doubted if the incidental study contacts of the Dalton Plan, or the accidental and unselected free activities of the Winnetka Plan, are in any sense adequate to develop group thinking and group attitudes in regard to fundamental civic, economic, and ethical problems which are the chief justification for much of the curriculum. Mere familiarity with the facts of these subjects does not necessarily indicate the socializing responses which an encounter with any of these facts in a social situation is especially calculated to inspire.

Opportunity and adjustment rooms. A much more widely used form of individual instruction is in connec-

tion with special rooms. Like the other two plans it calls for a complete reorganization of instruction methods, but its application is limited to a specially selected group of pupils. The plan has been followed in many cities, but has probably been developed most fully in Los Angeles. Pupils who are temporarily unable to do the work of any regular class are placed in this room until their difficulties are adjusted. Bright pupils may thus sometimes catch the grade ahead without skipping any essential material. In most cases, however, those selected have become retarded on account of special difficulties with one or more subjects, or from other irregularities. Emphasis may thus be placed where most needed, and the advantages of such opportunities for irregular pupils are unquestioned. The type of procedure is usually that of following guide-sheets of outlined material so that the pupil may progress as rapidly as he is able. More personal attention from the teacher is usually required than would normally be the case, and a correspondingly smaller group is assigned to these special teachers. Socializing activities are usually provided, but the emphasis is primarily upon the tool subjects so that the pupil may be enabled to resume his place in a regular group. On account of the temporary character of a pupil's stay in such a room, the questions as to social outcomes do not apply so forcibly as in the case of the other two plans.

2. *Modifications in classroom procedure*

Varying speed and ability groups. Educators who believe that the needed adjustments to meet individual differences can be provided without sacrificing the advantages of class instruction and class discussions have developed three rather widely used plans for accomplishing this end. The first of these is the scheme of forming groups

within a grade, according to ability, usually with the purpose of allowing the group to proceed at varying rates of speed. This is especially serviceable in the first grade, where children are received with widely varying degrees of readiness to do primary work. Many of them are deficient in their background of language and social experience, and, while unable to progress rapidly, need the stimulation of a homogeneous group. Under such grouping the slowest section may complete only half of the regular course during their first year, but they do it happily and well, undiscouraged and unhurried by classmates too quick for them, and usually are able to proceed at practically a normal rate thereafter. On the other hand, the fastest group, through superior native ability or other advantages, may complete an additional half-year of work beyond the regular allotment for the grade and thus be promoted directly into the upper half of the second grade. Varying-speed sections, to facilitate promotion and equalize opportunity through permitting the pupil to work in homogeneous groups, constitute probably the most acceptable means of meeting the situation, under ordinary school conditions, for at least the first five grades. After that, the elastic, or multiple assignment has advantages, as will be shown later.

The grouping of pupils according to ability possesses distinct value, even where no acceleration of progress through the grades is sought. Participation by every pupil on practically even terms reacts most favorably on interest and effort. Assignments can more easily be planned to require something like capacity effort from all, without unreasonable demands upon any. The stronger group may pursue a more enriched and a more expanded course. It is customary now in many junior high schools to permit a greater range of subjects to the stronger groups.

The basis upon which selection is made for the various groups is an important consideration. By far the most reliable information upon which this can be based is that furnished by intelligence tests, supplemented, especially in the upper grades, by educational tests in the subjects upon which success in that grade is dependent. While such tests are necessary to the most satisfactory grouping, they are more closely related to the next topic, and their use will be noted in that connection.

Frequent promotions. A second plan for securing and maintaining approximate homogeneity in class groupings is through frequent promotions. In the best school systems pupils are no longer kept in the same grade, even until the quarterly or semi-annual promotion time, if it is apparent that they are capable of doing satisfactorily the work of a higher grade. In no other respect has the development of scientific methods of measurement had more valuable application than in furnishing a reliable guide and justification for irregular promotions.

The factor which is usually accorded the greatest weight in determining the advisability of special promotion is the mental age of the pupil. This is most reliably determined by the Binet-Simon Intelligence Test, but the administration of this test requires a long period of time for each individual and a specially trained examiner. Consequently it is not advisable for general use, where no special assistance is available. Very satisfactory results can be more readily secured by various group intelligence tests which are now available, and which can be given to an entire room at one time by any competent teacher who will carefully follow directions. Probably the best and most practical means of all available is a coördinated "battery" of tests, such as the Illinois Examination, or the newer Stanford Achievement tests. These include

group intelligence tests along with educational tests in the fundamental subjects. Whenever this group of tests, given to all the pupils of a grade, shows that certain pupils possess the mental age and achievements appropriate to the next higher grade, special promotion is regularly justified. Such action, however, should be taken only after conference with the principal or other supervisory officials.

Elastic assignments. A third form of adjustment which preserves the group recitation, and yet provides opportunity for capacity work by all, is the elastic or multiple assignment. By this arrangement, a minimum contract of work is set forth which all must do, and which furnishes a basis for general participation in and comprehension of the class discussion. This is of course adapted to the ability of the slowest pupils. Certain supplementary items, usually of more interesting nature, are added to make up the medium or average assignment, while the strongest pupils may accept the challenge to their powers of the still more attractive maximum material. Under this plan the grouping is a voluntary matter for the pupils themselves.

Thus every pupil may show his ability to qualify for the higher mark merited by the maximum preparation, while the weakest must concentrate upon something within his range, and gets the minimum essentials as a basis for participating profitably in the recitation. Under the direction of a competent teacher the stimulation of interest by this plan, and the effort put forth by every pupil to be able to report himself at the beginning of each recitation as having gone beyond the minimum, constitute some of the most admirable class work which the writer has ever seen. This plan supplies adequate elasticity for the individual differences ordinarily found in any grade, and yet holds together pupils of approximately equal age and maturity for socializing group activities and discus-

sions. Individual contributions, prepared as part of the added assignment, may reflect special tastes and interests while enriching the recitation with unique material. The increasing popularity of this plan and the more general development of skill in its use promise to establish it as the most satisfactory and practical plan for adjusting recitation procedure to individual differences, especially in grades above the fifth.

Summary. The obvious differences in ability, tastes, and temperament to be found in practically any classroom constitute a practical problem for the teacher. The aim to be constantly held in mind in dealing with these inequalities is to provide such compensating adjustments as will allow the most favorable conditions obtainable for every pupil. This means that consideration must not only be given to the matter of adapting the difficulty of requirements so as to have vigorous effort rewarded by success, but also to the personal and emotional factors, so that every pupil may be led to assume a confident, coöperative, and purposeful attitude toward the work.

The means which have been employed to adjust classroom requirements to individual differences have taken two rather distinct forms. The more radical type proposes a more or less complete abolition of group instruction, and insists upon individual instruction, with each pupil progressing at his own rate. The best known plans for accomplishing this are the Winnetka Plan, the Dalton Plan, and the adjustment-room plan.

The other method of dealing with the problem prefers to retain the socializing advantages of group participation in learning-activities, and seeks to secure homogeneous groups by special measures. Extensive use is made of scientific tests to determine the most advantageous selection of the group for each pupil, and transfers are made

whenever the need is apparent. The most widely used means of making group instruction adaptable to variations in ability are, first, small groups progressing at different rates of speed; second, frequent and special promotions; and third, the multiple or elastic assignment which affords every child a maximum challenge to his ability, and yet retains within a homogeneous social group children of similar age and maturity.

The more radical proposals are still on trial in a comparatively small number of schools. Their introduction is usually possible only as part of a general school policy. The other plans, however, are practicable in almost any classroom, and every teacher should practice their use. They represent, also, the best possible approach to the more completely individualized methods in case further study should prove these worthy of general adoption.

OBSERVATION GUIDE ON ADJUSTMENTS FOR INDIVIDUAL DIFFERENCES

A. *Nature and extent of variations.*
   1. List the individual cases observed which seemed to need special treatment, for any of following reasons:
      a. Unusually bright.
      b. Unusually dull.
      c. Over-sensitive.
      d. Diffident and too easily discouraged.
      e. Too forward.
      f. Morose.
      g. Insufficient preparation.
      h. Other reasons.
   2. If the class seemed to have either more or less than average range of variation, give explanation as far as it can be determined.

B. *Provisions for equalizing opportunity.*
   1. Securing favorable attitudes and general participation.
      a. Note means of dealing with various temperaments to secure willing effort from all.
      b. Were provisions of this sort adequate?

2. Securing maximum effort and progress.
   a. To what extent were pupils' efforts proportionate to apparent abilities?
   b. Were any provisions made in assignment or recitation requirements to adapt work to ability of individuals?
3. General plans of grouping and instruction.
   a. To what extent did class groupings seem to recognize differences?
   b. Was any "plan," as described in text, being used in typical or modified form?
   c. Evidences of individual instruction for particular pupils.
   d. Comment on adequacy of general measures for equalizing opportunity.

PROBLEMS AND EXERCISES

1. Pupils may differ strikingly not only in respect to intelligence and previous training, but also in temperament, morality, and numerous other traits. Make a list of all such differences which you think should receive any consideration in plans for adjusting group instruction.
2. In what sense is the familiar claim of "treating all pupils alike" usually both untrue and unjust?
3. Name at least three school subjects in which individual instruction could most advantageously be introduced. Explain the basis upon which you made these selections.
4. If you found that certain pupils in a class "hated" arithmetic or algebra, while others in the same class liked it, what adjustments would you try to make for a difference of this kind?
5. What reasons can you give to account for the fact that individual instruction has not been more widely introduced into the public schools.
6. The advocates of the Dalton Plan do not recommend its use below the fifth grade, and its widest use has been in high schools. Why does it have such limited usefulness in the elementary schools?
7. Why should the teacher's judgment be supplemented whenever possible by scientific tests in selecting groups on the basis of ability?
8. Prepare an assignment for a class, in either geography or history (indicating the grade), which provides maximum, average, and minimum contracts of ample range for all probable differences in ability.
9. Suggest ways in which valuable uses may be made of individual assignments for certain pupils, even when group assignments are used for the class as a whole.
10. How do you account for the fact that problems in discipline are generally occasioned either by unusually bright or by unusually dull pupils?

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CHAPTER XVIII

TESTING AND MEASURING RESULTS

The relation of measurement to teaching technique. The effectiveness and success of any phase of teaching technique can be demonstrated only through the character of the results obtained. While it is true that the final proving for much of the work of the school must come in meeting the social demands of later life, it is fortunately also true that the day-to-day progress toward certain very important objectives can be immediately measured. Such measurement is not only necessary to the intelligent direction of a program of education, but also reacts in some very significant ways upon the teaching procedure itself.

In the preceding chapter we found that the individual variations to be encountered in even well-graded groups of pupils were so great as to demand corresponding adjustments in the materials and methods of instruction. Such adjustments can be correctly made and maintained only by constant reference to the responses and progress of the pupils. The expert gunner does not fire any considerable numbers of his shots at a given target without seeking to learn minutely the results of each, so that the following practice may be redirected accordingly. Similarly, even the most skillful teacher will have continual need of checks on the varying responses and progress of each particular individual and group, so that the teaching procedure may receive corresponding readjustments. This constitutes the first and most obvious way in which the measurement of results may modify teaching.

There is another respect in which the measurement of results inevitably affects the plan of teaching. Whether

consciously or not, the teacher will organize material, select points for emphasis, and direct the form of learning in accordance with the nature of the test which the pupils are expected to meet. When the character of the test puts a premium upon fact-cramming, the instruction is likely to be narrowed into furnishing that kind of preparation — a situation which is often lamented in secondary schools as an effect of college entrance examinations and regulations. Even where the testing is to be done entirely by the classroom teacher, the effects of the predetermined type of test will appear in suggestions that certain material be marked for review, in especial emphasis upon favored points, and in similar features of instruction, all looking toward "giving the pupils a fair chance to make a creditable showing," as one teacher expressed it. In view of the very intimate relationship between the measurement of results and the teaching procedure, it is a matter of no little importance to have a system of testing and measuring which will not only furnish a reliable indication of progress and needs, but will also affect the plan of instruction in the most beneficial way possible.

Inadequacy of traditional means of testing. Until comparatively recent years, the only method in use for measuring the results of teaching was the familiar written examination. This consisted usually of about ten questions (a convenient number for scoring) which were selected by the teacher or other examiner in accordance with that individual's particular theories of a "good examination." When the questions were prepared by an outsider, both pupils and teachers felt justifiable apprehension regarding the possible inclusion of "trick" questions or queries concerning facts regarded as of negligible importance by all except the examiner. The teacher's own questions usually possessed similar "pet" features, the only difference being

that the pupils learned to expect them and to be correspondingly prepared. For these and other reasons, to be noted later, such examinations were not *valid measures* of the most significant items for which a measure should be sought.

Perhaps an even greater weakness of this plan of measuring results lay in the unreliability of the scoring. The extent to which the personal opinion of the one marking an examination paper enters in as a variable and unreliable factor was not generally realized until the studies of Starch and Elliot, in 1912 and 1913, which are described by Starch, in his *Educational Measurements*, Chapter II. They had two final examination papers in ninth-grade English marked by 142 English teachers in as many different high schools. The marks for one paper varied from 64 to 98, and for the other from 50 to 98. A geometry paper sent to 114 teachers of mathematics drew marks varying from 28 to 92, while a history paper was rated from 43 to 90 by 70 history teachers who marked it. A Freshman English examination paper was given marks ranging from 44 to 81 when marked by different members of the same department, presumably following the same instructions and standards as to marking. Even the same instructor, when marking the same papers after an interval of a few weeks, showed a variation of as much as 15 points. Any method of measurement which is affected so disturbingly by the *subjective standards* and *personal whims* of the examiner is unreliable as a means of securing data of any great significance to the teacher. The recognition of these two major faults in the traditional method of measuring led to the development of more scientific means of testing.

Advantages of scientific measurement. In order to be a satisfactory measuring instrument, a test must have certain characteristics. Ruch, in his helpful book, *The*

Improvement of the Written Examination, names five of these which should be possessed by either a standard test or an examination. These are validity, reliability, objectivity, ease of administration and scoring, and established standards. These qualities in a test can be secured only by careful study and experiment, and it is toward these that scientific research has been directed. To possess validity a test must really measure what it purports to measure, giving due weight to items of foremost importance, and containing only material of genuine significance for revealing the particular thing sought. The advantage of comprehensive experimental studies in this regard should be obvious. The reliability of a test refers to the accuracy of its scores — the extent to which they reveal the true amount of the ability which is being measured. The reliability of a test may sometimes be increased by improving the wording of the questions so as to eliminate confusion, or by giving various weights to items in proportion to their importance or difficulty. The value of scientific studies in this regard should also be obvious.

A test has objectivity when personal opinion is eliminated from the scoring. In an inter-school contest the test in high-jumping is objective, and the spectators, regardless of personal feelings, know when the bar has been cleared, but an oratorical contest can not be decided by such objective measurement, and half of the audience questions the decision of the judges because of the personal elements involved. The teaching value of an objective test is great because the pupil can score his own achievement and have a share in directing, by visible stages, his own improvement. Ease in scoring and administration is a decided factor of advantage in this same connection, because it relieves the teacher of unnecessary burdens, even where it is not advisable to have the pupils take any considerable part in

helping with the scoring. Finally, the value of a test is immensely increased if its use has been sufficiently extensive to establish standards by which to interpret the results received. A score of 60, made by a sixth-grade pupil on a certain test, has relatively little meaning in itself, but when we know that 10,000 other sixth-grade pupils have taken the same test, with an average score of 55, the mark has much more significance. Our recent progress in perfecting scientific tests which possess the foregoing characteristics has furnished the teacher with greatly improved instruments for measuring results.

Complex nature of the problem. Although the teacher should be prepared to make the fullest possible use of such scientific methods of measurement as have been perfected, and also to try experimentally and with due caution the tentative plans which promise further progress, it is necessary at the same time to realize that there are still phases of the problem of measuring results which call for much thought and resourcefulness on the part of the individual teacher. The complexity of the problem is due to the fact that the outcomes of learning are not of a single uniform type, and consequently do not lend themselves readily, in all cases, to objective or mechanical measurement. Some educators have even declared that the most important outcomes of school activities are not susceptible of measurement at all. It is well in this connection to give some consideration to the various types of learning-outcomes, and the extent to which each may be satisfactorily measured with such means as are at the teacher's disposal.

Can all outcomes be measured? The greatest progress that has been made in perfecting objective measurements has been in the field of skills and mechanical abilities. These regularly involve motor activities, with a correspondingly objective type of performance which is imme-

diately measurable by wholly objective standards It is not strange, therefore, that the first scientific measurements, fulfilling the requirements as just enumerated, were in spelling, handwriting, and the fundamental processes of arithmetic, where the thing to be measured is mechanical skill as shown by objective *performance.*

When we consider the second type of outcomes, and prepare to measure knowledge and information, we encounter a more difficult situation. The thing to be measured is no longer a matter of mechanical performance (except as one phase of it, the recall of facts, is largely mechanical), but is a more complex product. As we learned in Chapter XI, any real mastery of information must include the ability to apply it in appropriate situations, and the possession of rational associations, arising from and favorable to thoughtful judgment. The test of such mastery must involve an encounter with *unexpected situations and material,* whereas the test of mechanical skill may legitimately remain an unchanged requirement in the way of responses for which pupils have been deliberately practicing, as in handwriting. Since practicing upon the precise material to be used in an information test would produce misleading scores, so far as revealing comprehensive mastery of any considerable range of information, the material of such a test should call for *unexpected samplings* from a range of information too extensive for complete testing. From these samples, properly distributed, may be inferred, with reasonable reliability, the character of the achievement in this field.

The third type of outcome presents the greatest difficulty of all. From the very fact that attitudes and appreciations are emotional and personal — that is to say *subjective* in character — they do not lend themselves in any direct sense to objective measurement. For that reason

examination grades are never true measures of the emotional responses sought in literature, music, or art. The problem is not, however, a hopeless one. Just as the physician derives from his patient's pulse, temperature, and tongue some valuable indications regarding quite different organs and functions, so the teacher, in the measurement of appreciations, must depend upon *symptoms* and infer from them the data sought.

Bearing in mind, then, that in the measurement of the three typical outcomes of learning we are concerned primarily with the examination of *performance*, *samples*, and *symptoms* respectively, we are ready to discuss the most appropriate methods of testing in each case.

1. *Measuring skills and mechanical processes*

Well adapted to standardized measures. The objective character of mechanical skills is almost perfectly adapted to the use of standardized measurements. The advantages of such use have been pointed out, not only in the earlier paragraphs of this chapter, but previously in connection with motivation, with effective distribution of practice in the drill lesson, and with adjustments for individual differences. The arguments in favor of such helps need not be reviewed or extended at this time. They may all be summed up in the statement that it is only through such use that the learning and teaching of the fundamental skills and processes can be freed from capricious and uncertain standards of attainment and made an impersonal, business-like undertaking, with well-defined goals toward which teacher and pupil coöperatively may work with confidence and interest. Two points should be noted, however; one dealing with the use of such tests for improving this type of teaching, and the other with the use of informal tests.

Improving teaching through standardized tests. One of the most valuable forms of service rendered by the standardized tests has been in guiding the direction of practice. This has been the especial contribution of the diagnostic tests. These are designed to locate the particular points of weakness in a subject which includes a complex array of separate habits. It is no longer necessary or justifiable for a teacher to declare merely that a class is weak in arithmetic, and that general drill seems to produce little improvement. A diagnostic test will reveal the exact points of weakness, and concentrated drill upon these will often result in surprising progress. No teacher can safely rely upon his own impressions and subjective standards for determining the proper allotment of practice. One may over-emphasize multiplication and neglect subtraction, and another may make a different type of mistake in judgment. The standardized test shows the true situation, in each process, in comparison with what is indicated as standard achievement by results secured elsewhere. Space does not permit an adequate discussion here of the possibilities for improving teaching through the use of such methods of measurement. The excellent special books in this field, such as those named among the references at the end of this chapter, afford detailed guidance in this regard and should be carefully consulted by the teacher in service.

Informal tests for special skills. Frequent occasions will arise when it will be desirable to test the pupil's attainments in some matters of skill less formally than by the standardized tests, or in activities not directly covered as yet by such tests. In such cases the teacher may prepare very satisfactory informal test-material, if the most important features of a good test as enumerated in an earlier paragraph are kept in mind. Above all, the teacher should

determine in advance the precise ability which is to be measured, and have a definite purpose which is to be fulfilled through the information secured. With these points clearly in mind, exercises can be set which are comprehensive for the particular ability to be measured without containing unnecessary material. It is wise to keep such tests limited in scope, testing only a few items of skill at a time, so that the results will be correspondingly clear in meaning. The teacher will derive much help in this respect by studying a sample set of standard test material, and noting the plan followed.

The same general principles apply to the formulation of a test for important items of skill not included in standard tests. Such, for example, is skill in study. The writer once made an informal survey of thirty-two classrooms, and found that only three teachers were prepared to hazard a rating of their pupils in the matter of skill in study. A brief assignment was accordingly arranged, adapted to objective scoring, the pupils were provided with texts and reference material, and a test was made of their ability to master such an undertaking. The results showed an amazing diversity in time required, quality of results, and methods of study used. Special study-lessons were at once planned to correct the weaknesses revealed, with extremely gratifying consequences. The preparation of similar tests for various important items of skill is not difficult, and the information obtained may have the greatest directive value.

2. *Measuring knowledge*

Difficulties of standardizing. We have already noted the fact that the measurement of knowledge is a process of inferring the scope and accuracy of the information possessed from the samples obtained through a selected test.

The problems of securing the right distribution of samples to constitute a valid test, of selecting the items of prime importance, and of assigning a just value to each sample in proportion to its significance, all deserve thoughtful consideration in preparing such a test. If these could be worked out into a well-balanced and effective test, capable of sufficient repetition to determine reliable standards for comparison, it would be of decided advantage in measuring results. As we have already seen, however, the data obtained on an information test is a reliable index only when the pupils have no advance knowledge of the particular questions to be asked. These difficulties have operated against any very trustworthy standardization of information tests. While there are carefully prepared tests available in such subjects as geography and history, they are of value more as checks and models than as standardized measures. In view of the difficulties involved in securing a satisfactory measure of the pupil's information in any subject, some valuable suggestions for the teacher are contained in the various attempts which have recently been made to improve the traditional type of examination.

Improved forms of examination. The shortcomings of the traditional examination grew out of the fact that, in the effort to make it comprehensive, no particular phase of the learning-outcomes was measured very well. Most of the questions called for the essay type of answer, which required scoring by subjective standards. The examination threw little light upon the pupils' ability to use the information, while the samplings obtained were so limited in number and scope as to have small reliability as an index of the thoroughness of the information possessed in that field. In the attempt to eradicate these major faults, the newer examinations aim to test only one type of out-

come at a time, to secure a more comprehensive range of samplings, and to make the measures more objective.

In accordance with the first purpose, the test for ability to use knowledge is separated from the test of ability to recall or recognize correct information. While this is not theoretically the most desirable plan, in practice it furnishes the most reliable measures yet obtainable. In testing for the recall or recognition of facts, such plans as the True-False test, the Completion test, and the Best-Fit or Multiple Choice test are frequently used. All of these permit a great number of single facts to be included in a brief test, and the scoring can be made objective. Much more of the teacher's time is required in preparing such a test, but this is compensated by the time saved in scoring. The teacher will do well to make prudent use of such of these forms as are adapted to a particular situation, bearing in mind that the chief advantage to be gained is in the opportunity to cover a wide range of well-selected and representative facts. The definiteness of these forms of examinations appeals to the pupils, while it is no small relief to the teacher to be spared the wordy effusions with which pupils attempt to conceal their ignorance. Detailed information as to these newer types of examination may be obtained from references listed at the end of this chapter.

The open-book type of examination. This plan of testing allows a separate test of the learner's ability to use information, unconfused by the distractions attendant upon a hurried attempt to recall an extended list of detailed facts. This can best be accomplished by the "open-book" examination, in which the learner has available any needed reference material and must demonstrate his ability to make intelligent use of that material in problem-solving. This places the pupil in the same situation as confronts the technical or professional man, whose effi-

ciency is largely dependent upon the ability to make intelligent use of a working library of books, tables, and special reference material. The pupils welcome such an examination, as they are without the demoralizing fear that some tricky slip of memory will wreck a train of thought and defeat prolonged preparation.

A word of warning is needed by the teacher who is using the open-book examination for the first time. The tendency will be to make the questions entirely too difficult. As a matter of fact, there are hardly any circumstances under which the weakness of a poor thinker is so apparent as when he is staring helplessly at printed pages which refuse to do his thinking for him. Fuller explanation and illustration of this type of examination will be found on pages 17 to 23 of the author's *Training for Effective Study*, from which the following is quoted:

> At least two important results can be tested by an examination of this character which are not usually now being tested in any adequate way. These are, first, the pupil's ability to carry out a connected line of thinking on any question with only such slight references to books as any thoughtful person would be expected to make under such circumstances; and, second, the pupil's skill and judgment in selecting quickly from an extended range of material only those facts needed for some special purpose. For example, when a teacher gave to a class in history the following question, "Tell why you would, or would not, have voted for Henry Clay for President," some pupils wrote their answers with no reference whatever to the textbook; others merely gave a hasty glance or two to verify their impression as to his attitude on certain policies; while those who spent more than two minutes thumbing over the book in search of a substitute for independent thought were unable to write any satisfactory answer. The test was plainly one of thought and not of memory.

In thus giving separate examinations to test for memory and thought, it is advisable to give the fact-examinations

at frequent intervals during the term, while the material is needed for day-to-day use and while ready familiarity with the items should be assured. As a final examination, the test for retention of particular facts is not so important as the measure of increased power to use and apply information. On that account the open-book test possesses marked advantages for use as a final examination.

3. *Measuring appreciation*

Examination results often misleading. As we have already seen, appreciations in their nature are so distinctly subjective that the objective manifestations are at best only symptoms from which the emotional responses are to be inferred. Although these objective indications can be measured, there is no constant or reliable relationship between them and the amount of appreciation. For example, the most demonstrative individual at the concert or the one who has most information to offer at the art gallery may not in either case be the most deeply or permanently appreciative person present. For the same reason the evidence afforded by an examination in this field may be misleading as to the degree and genuineness of appreciation indicated by the factual data secured. Many teachers have deluded themselves into the belief that they have really been teaching literature on the strength of the logical examination papers which their pupils can write, regardless of the evident and growing distaste for the material itself.

On the other hand, the teacher who realizes these limitations and is discriminating, may secure through the examinations some valuable data in regard to the informational basis required for proper appreciation. The background of facts, vocabulary, and similar matters essential to appreciation may be tested, and a ready knowledge of these not only indicates a good basis, but furnishes fair

evidence of probable appreciative participation to at least a slight degree. At best, however, the usual examination has such slight reliability as a measure of growth in appreciation that earnest attempts have been made to develop a more satisfactory means of testing.

Attempts at improving methods. The realization that improvement in attitudes and appreciations could be more reliably demonstrated by what learners voluntarily do than by what they say, especially if they know that they are being tested, has inspired the search for a corresponding type of test. A very carefully planned and reasonably successful scheme was employed by Voelker, as described in his *The Function of Ideals and Attitudes in Social Education*, to measure improvement of ideals and attitudes as a result of special education. His plan was to have the boy, who did not know that he was being tested, engage in activities in which there would be some temptation to cheat, to assume undeserved credit, to be dishonest, or to prove untrustworthy in certain other ways. The spontaneous behavior of four troops of boys under such conditions was observed and recorded, both before and after half of them had received special training from Scout masters with a view to developing trustworthiness. The significant improvement shown was both a justification of the method of instruction and of the method of testing. It is to be hoped that other and simpler tests using this principle will be developed.

Estimating results through activities. At the present time the most trustworthy evidence available for the teacher as an indication of improved appreciations, attitudes, and tastes is in the voluntary activities of the pupils. The choice of a different type of reading material, the willingness to undertake greater responsibilities, application for permission to join some special study-club, the

development of new leisure-time enthusiasms — all these are the sort of "symptoms" which provide far more reliable indications of the growth of finer appreciations than any written examination can furnish. These do not adapt themselves very conveniently to a graded system of marking, but as yet it is to such spontaneous activities that the teacher must look for the most convincing test of results attained in this field of teaching.

Summary. The measurement of results bears a very intimate relationship to the technique of teaching, and any great improvement in the latter is dependent upon adequate and trustworthy measurement. The traditional written examination was too uncertain in its scope and in its reliability to furnish such guidance. More scientific means of measurement are being perfected, providing greater validity, reliability, objectivity, ease of administration, and standardization of test results.

Each type of learning-outcome presents a different problem in measurement. Habits and skills, being essentially objective performances, are well adapted to standardized tests, and the latter should be the accepted tool of measurement. Information and knowledge can be measured less effectively by this method because a plan of sampling must be used, and the selections sought on examination should be both comprehensive and unexpected if the results are to be satisfactory measures. The newer types of fact examinations are useful, provided the ability to use the facts in problem-solving is tested separately. The task of testing the growth of attitudes and appreciations is the most difficult of all, since objective manifestations are only symptoms of emotional responses with no direct quantitative relationship. Examinations may be helpful to a very limited degree, but are misleading for anything beyond the informational basis upon which appreciations

rest. Earnest attempts are being made to develop a better kind of test for this type of learning, but as yet the most trustworthy measure of improved attitudes and growing appreciations is to be found in the voluntary choices and spontaneous activities of the pupils.

OBSERVATION GUIDE ON MEASUREMENT OF RESULTS

If arrangements can be made for the student to observe the giving of a standard test, such an observation should be made to note the careful technique followed. All such tests have very specific instructions which must be followed strictly, or the results lose their values. Such an observation of the administering of a test by a competent examiner is invaluable to the teacher who plans to use such material later. If possible secure a copy of the instructions, and note how each detail was carried out.

In case the test is not one in which standard material is used, the student should secure a copy of the questions used and, instead of an observation visit, the examination questions may be studied for the following characteristics:

A. *Validity.*
   1. Are the questions well adapted for measuring the *particular results* for which the test is apparently set?
   2. How comprehensive, representative, and "worth while" are the questions as a group?

B. *Reliability.*
   1. Are questions "fair" and thorough?
   2. Are they clear and free from ambiguities, both for pupils and scorer?
   3. Does the time-element permit accurate measurement of the particular things tested?
   4. Is there any probability that luck or chance may unduly affect the scores on this test?

C. *Objectivity.*
   1. To what extent is correctness of answers left to opinion of scorer?
   2. Is room left for "argument" or resentment by pupil, as to marking of his paper?

D. *Ease of scoring.*
   1. Will marking of papers be burdensome?
   2. Could pupil-scoring be safely utilized?
   3. Can results be made *immediately* available for redirecting class instruction?

PROBLEMS AND EXERCISES

1. What must be true of any means of measuring results before it can properly be called scientific?
2. Explain the difference between an intelligence test and an educational test. What should be the function of each in judging the achievements of pupils?
3. What is the distinction between "subjective" and "objective" in the matter of tests? Why is the latter a more desirable kind whenever available?
4. To what extent does the daily recitation work furnish a reliable measure of results?
5. What are the arguments for and against giving pupils extended warning as to when a test is to occur?
6. A teacher prepares an examination in arithmetic for sixth-grade pupils, and over half of them fail to make a passing grade. What are the possible explanations of this showing, and how could she determine which was the correct one?
7. Should a pupil's promotion be determined solely by his marks on examinations and standard tests? Justify your answer, and explain in detail the conditions under which you think exceptions, if any, should be made.
8. What are the advantages of the True-False type of examination in testing for information? Are there corresponding disadvantages?
9. What precautions should be taken to secure reliable "sampling" in an information test?
10. What outcomes are tested in an open-book examination which are not fully measured in other types of tests?
11. Discuss the reliability of examination marks as a measure of results in appreciation subjects. Can you suggest a better basis for rating in those subjects?

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For detailed study of standard measurements, the student should consult one of the many excellent texts in that field.

CHAPTER XIX

PERSONALITY AND PERSONAL FACTORS IN TEACHING

The teacher as part of the "total situation." Up to the present we have endeavored to keep foremost in all our discussions the idea of pupil-activity as the first consideration in any phase of teaching. The part of the teacher has been constantly viewed only in relation to its contribution to the stimulation and guidance of pupil-responses. In short, the teacher's function has been regarded somewhat as that of a skillful stage-manager, who plans and controls the succession of "settings" so as to induce responses of a desirable sort, and to eliminate responses of an undesirable sort.

The teacher, though, is not and cannot be merely the stage-manager; the teacher is an actor as well, a social factor in the "total situation" to which the pupil responds. Consequently, the personality of the teacher must be reckoned in our teaching formula as a variable which may increase, diminish, or even negate the influence of all other factors of planning, organization, appeal to interest, psychological analysis, and earnest endeavor. The extent to which the personal element may affect the learner's response is suggested in Emerson's famous line, "How can I hear what you *say*, when what you *are* keeps thundering in my ears?"

In turning our attention in this chapter to the personal characteristics of the teacher we are not changing our viewpoint. We are still interested in the pupil as the center of gravity in the educational plan, and have now to consider the final important element influencing his responses in a given situation.

Importance of personality generally recognized. Although they do not always find it easy to define what they mean by personality, all supervisors and superintendents agree in assigning it marked importance in determining the success of a teacher. In fact, many superintendents regard it as the most influential factor in a teacher's equipment, and consequently insist upon the "personal application" plan for all candidates who seek positions in their schools. Such administrators no doubt entertain at least a vague hope of predicting probable effects upon pupils through their own reactions to the applicant's personality. Both the importance of this point and some of the ways in which its variations are apparent, are implied in the following quotation from the April, 1925, issue of *The Journal of The National Education Association*, printed with the acknowledgment as indicated at the end:

> Two teachers are working side by side, teaching the same grades, doing the same work, and, supposedly, getting the same results, but —
>
> One has a strong and pleasing personality; the other is colorless.
>
> One shakes hands with a firm warm grip; the other drops her hand in yours like a wet codfish.
>
> One is kindly sympathetic; the other is indifferent.
>
> One stands squarely on her own feet; the other needs crutches.
>
> One inspires love of work; the other inspires indifference or downright hatred of work.
>
> One is loyal to all that is best; the other not disloyal but unloyal.
>
> One teaches living souls; the other teaches facts.
>
> One travels the sunlit heights; the other the narrow ravine.
>
> One lives to teach; the other teaches to live.
>
> One's chief pay is in the joy of accomplishment and in the growing souls of her children; the other's only pay is in a city check.
>
> (*W. J. R., in Everett, Mass., Bulletin.*)

Can personality be improved? Our consideration of personality as an important element in teaching technique

brings us face to face with the question as to whether it is subject to improvement and control in any such degree as other factors are. If it is not, then this chapter should logically have been placed at the beginning rather than at the close of the book, and should have proposed tests by which those unacceptable on account of personality could be eliminated and spared the effort of further study in this line. It will be remembered, however, that the opening chapter contained instead an outline of the teacher's responsibilities, with at least the implication that any one willing to accept the challenge to thorough preparation, professional standards, and loyal service as therein set forth might reasonably hope to become an efficient teacher. It is now incumbent upon us to define the factors of personality as they may directly affect successful teaching, and to show how the earnest aspirant may, through faithful preparation and practice, develop such qualities to an acceptable degree.

Personality, at least in the sense in which it plays a significant part in teaching, includes two fairly distinct types of characteristics. One of these is essentially physical, the other mental. The first consists of such features as appearance, voice, manner, health, and energy; the other has to do with one's enthusiasms, attitudes, vital convictions, disposition, and responsiveness. We shall attempt to point out the influence which each of these may have upon the learner's responses, and to suggest ways in which needed improvement in any particular may be brought about by any one whose professional spirit is such as to make him willing to put forth the necessary effort.

1. *Physical features of personality*

Appearance. In these days of multiplied social contacts, the effect of one's appearance in influencing the

responses of others is so generally recognized as to require no proof. Just as men and women in other lines of professional or business life generally realize that care in this respect is a good investment, and that a properly presentable appearance is no small personal asset, so the teacher should consider this matter in a similar light. To avoid dowdiness or undue monotony in dress, to present a cleanly, well-groomed look, especially as to hair, teeth, skin, and nails, and, in general, to show reasonable regard for the details of personal appearance, will be well repaid in the way of more favorable attitudes and responses on the part of the pupils. Excessive "make-up" or inappropriate dress tend to make the teacher an "exhibit," rather than a wholesome influence for promoting the aims of education. Further details in regard to what seems an obvious matter should not be needed. The personal effectiveness of a teacher can be so materially increased by reasonable attention to appearance that neglect in this respect is inexcusable.

Voice and manner. So closely related that improvement in one almost certainly means improvement in the other are the characteristics of voice and manner. The quality, pitch, and loudness of the teacher's voice have such power to produce irritation or good will, nervousness or relaxation, noise or quiet response, that many superintendents give it foremost consideration in the selection of a teacher. The same qualities which make the voice so potent in affecting the spirit of the classroom are likely to be reflected also in the general manner, since brusqueness or courtesy, disagreeableness or cheerfulness, and glumness or good humor are almost inseparably linked in voice and manner. The voice which is harsh, unpleasant, complaining, high-pitched, indistinct, too loud, badly placed, or lacking character places a severe handicap in every case upon

the teaching-activity. Correspondingly unfortunate traits of manner are of course equally disastrous in their effect upon the attitudes of the pupils. In general, it may be said that personality finds its natural expression through the voice and manner, and that defects in these avenues mean lowered efficiency for whatever other resources one may have in the way of personality.

Shortcomings in either voice or manner can be improved to a marked degree by determined effort. Occasionally faults in both lines are due to a wrong attitude and philosophy on the part of the teacher. The writer has known some cases in which indifferent teachers became professionally "converted," and their changed attitudes toward their work and toward children were quickly reflected in their tone and manner. The same principle applies to weaknesses of a more limited type. A feeble, apologetic tone not only suggests irresolution and weakness to the pupils, but probably springs from a lack of vigorous purpose. The remedy for such causes will be considered in a later paragraph.

Where the difficulties are essentially due to physical causes, much can nevertheless be done in the way of correction. A few lessons in the correct placement and use of the speaking voice, accompanied and followed by faithful practice, will yield most gratifying results in almost every case, especially with the beginning teacher. Similarly, the teacher should be on the alert for hints as to unfortunate mannerisms, distracting displays of nervousness, or other evidences of a lack of poise. The practice of restraint in situations likely to occasion these, and the deliberate cultivation and substitution of better modes of conduct, will result in a growth not only conducive to better teaching but increased personal satisfaction as well.

Health and energy. If personality is to be dynamic and

show itself in any vital way, it needs the vigor which only health and abundant energy can supply. Occasionally an individual in an unsatisfactory state of health may display forceful personality on brief occasions, but for the teacher this will not suffice. Sufficient energy to carry along the direction of a recitation with alert mind and sympathetic good humor can be permanently supplied only by a satisfactory and well-conserved state of health. Lowered energy and uncertain health are reflected in impatience, discouragement, lack of sympathy with undertakings of an aggressive character, and an almost certain loss of the fullest leadership in the active concerns of the pupils. Childhood is the time of buoyant vitality, and the teacher who is not able to match this to a reasonable extent is not only incapacitated for constructive leadership but will be increasingly irritated and exasperated by the incessant display of physical exuberance on the part of the pupils. The result is too frequently a type of repression which such teachers turn to in self-defense, and which, although it saves some of them from threatened loss of control, is inimical to real teaching.

In view of such considerations as these, the habits and activities which have bearing on the teacher's health and energy take on professional significance. Observance of regularity in hours of rest and recreation, and similar precautions as to health, should be so familiar to every teacher as to need only the reminder that we should "practice as we preach." Special notice should be taken, however, of a situation which regularly confronts the teacher in service and which has bearing at this point. There is frequently danger that outside activities, often of a commendable character in themselves, may be allowed to absorb an undue amount of the teacher's time and energy. There are many phases of social service, as well as appealing

activities of other types, which are urged upon the teacher because of the latter's preparation or personal qualifications. These may, of course, furnish a legitimate share of the teacher's recreation, or may be so closely related to the welfare of the school as to constitute an actual phase of the broader responsibilities belonging to the position. In many instances, though, the connection is not so close as may seem, and the teacher will be wise to guard against encroachments which consume undue time and energy. Whenever these activities cease to perform a genuinely helpful or recreative service, and begin to leave a feeling of lowered energy for the subsequent duties of the school, it is time for thoughtful revision of the program of outside activities before personal efficiency is seriously affected.

2. *Mental factors in personality*

Genuine interest in children. It has already been suggested that the mental factors in personality are to be found chiefly in the form of one's enthusiasms, vital convictions, and fundamental interests. From the standpoint of the teacher's personal equipment for successful teaching, the most important of all fundamental enthusiasms is a genuine interest in children. Out of this grows a ready sympathy in their difficulties, a delight in their achievements and triumphs, and a willingness to study their needs. It must, of course, be supplemented by accurate knowledge and clear thinking to prevent its becoming aimless sentimentality, but it nevertheless is capable of furnishing the inspiration for the pursuit of the needed knowledge, and in the day-to-day problems of the classroom can maintain a friendly understanding between teacher and pupils in situations which would otherwise be irritating and baffling.

The importance of this characteristic will no doubt be generally accepted. Many, however, may be inclined to question the possibility of developing this trait in particular, if one does not already possess it, arguing that this is the especial characteristic of the "born teacher." There is no denying that certain individuals are so constituted temperamentally that they enjoy being with children, and naturally come to have interests in that direction, but to declare that any individual of normal tastes can not also develop a genuine interest in the problems and activities of child life is to deny that attitudes and enthusiasms in general are the result of the activities and experiences in which the possessor has participated. The story is told of a woman who later became an enthusiast in zoölogy but who, in her student days, felt a decided aversion toward reptiles in general. One day her interest was caught by a statement in regard to a curious relationship between two species of lizards. Repressing her shivers, she began to make some observations in regard to the point. As she pursued more intently her study she found her aversion toward the reptiles disappearing, and she later became so fond of them that she kept several of them as cherished pets.

Whatever significance there may be in the frequent examples of scientists who have found aversions changed into enthusiasms as a result of extended and devoted study, it is certainly true that equally impressive illustrations could be furnished by many supervisors who have had experience with beginning teachers. The writer has in mind two young women-students who frankly said when they enrolled for teacher-training that they did not care for children, but that circumstances were such that they would have to teach and they were willing to do whatever was required in the way of proper preparation. They

were intelligent and conscientious, so, before they were given an opportunity to begin practice-teaching, they were purposely assigned the task of studying a small group of retarded children and of finding ways in which these could be helped over some of their difficulties. A changed attitude was soon apparent, and their sympathies were so enlisted in behalf of the plodders by the end of that term that they asked to be assigned a slow group for practice teaching. Their growing interest and success in teaching stood out in marked contrast to the work of two other students who declared that they "just loved children," but who proved to be unwilling or unable to put forth the earnest effort and patient planning necessary to translate their affection into intelligent and effective guidance. The writer would not wish to be understood as favoring any plan for recruiting teachers from students who originally disliked children, but he wishes to emphasize the fact that any conscientious student, capable of earnest study, who plans to enter teaching, can do much toward developing, to a satisfactory degree, the indispensable quality of interest in children and sympathy with their undertakings.

Attitude toward professional improvement. Another factor which profoundly influences the development of the teacher's personality is the attitude toward professional improvement. An institute lecturer once remarked that the future of a teacher depended upon whether she regarded her work as an opportunity, a job, or an affliction. His point that each of these three attitudes would inevitably stamp its impress, for better or worse, upon the whole personality of the teacher was well founded. Personality can develop at its best only when one is engaged in work which is considered worthy of all that one can put into it in the way of preparation, service, and enthusiasm. A man who employed a considerable number of

men and who felt that he knew their possibilities, once told the writer of a case which had puzzled him. A workman who had previously been characterized by no unusual qualities, except perhaps a little more than ordinary loyalty to his craft, had become interested in a fraternal movement for the betterment of conditions among his fellow-workers, especially in regard to recreation and opportunities for self-improvement. Since he seemed the most interested and willing to work, he was elected to the chief office in the organization. He threw himself enthusiastically into the cause, studying every opportunity for promoting it, and showing himself devoted to its success. My friend was amazed at the effect upon the man himself. His increasing ability to meet people in an impressive manner, his growing effectiveness in speech, and other unexpected marks of leadership appeared in such contrast to his former characteristics that my friend was hardly prepared to accept the man's simple explanation that he had only been trying to find better ways of doing something he believed in.

An eagerness for self-improvement works the same change, to a greater or less degree, in every teacher who follows its promptings. New values appear in what had seemed common-place duties. With increasing experience, and with the new light constantly being thrown upon school problems by educational research, the progressive teacher finds abundant variety in every phase of the work. Through these broadening and unfolding interests, such a teacher brings to the classroom a constant inspiration and renewed capacity for leadership.

The writer recently had the fortune to be present at a meeting, held at a community high school, where a large part of the program was furnished by groups of pupils from the neighboring elementary schools. One

group in particular seemed to have caught the social spirit of modern education in an inspiring manner. Such a demonstration of freedom through coöperation as was furnished by the pupils themselves could only have been produced under superior leadership, and the writer asked concerning the teacher. "Here she is," said the principal, and we met a clear-eyed, white-haired woman of sixty-four, who seemed more eager to learn new ideas than to talk of her own achievements. As was learned later, her keenest interest was in trying to discover how each year's work might be done a little better than the preceding one. The meager training with which she began had been enriched and improved as changing methods in education were tried and something of value gleaned from each, but the most impressive result was the fact that out of the quest had come a personality that suggested continual youth and growth. Rarely would one find more impressive proof that plans for professional improvement are not merely a duty, but carry unique opportunities for self-realization and personal growth.

The teacher's philosophy. Closely connected with the attitude toward professional growth is the broader question of the teacher's philosophy. One's philosophy must always be an individual and personal matter, because its formulation involves an evaluation of those principles and convictions which one holds to be fundamental. These will take relative values and color from the particular experiences which have given meaning and significance to each, and come in their totality to represent one's conception of his work as his pathway to more abundant living. Those teachers who have found in their work the most fruitful sources of satisfaction, and have fashioned from it the most vital elements of personality, have usually held certain common convictions which

served them as the philosophy of their calling. Such a philosophy helps one to clarify his outlook upon life and to maintain a sense of proportion in service. As a fundamental basis for the teacher's philosophy the following truths are offered, upon which each individual may build his own structure of interpretations and values.

First, the only true and permanent wealth of a nation is in its children. All other wealth is merely tributary to this. In order that childhood may be fed, and made secure, and given opportunities, men toil, amass riches, struggle for power, and even offer up their lives rather than permit posterity to be degraded. When the youth of a nation are unfit, all other wealth becomes a menace. Consequently, whoever labors to help the children to better things is adding to the most vital resources of humanity.

Second, satisfaction and self-realization are best attained through useful service. Life finds its true zest in achievement. Men give years of unremitting toil to the completion of a task, and are content if their fellowmen acknowledge work well done. It has been said that only those who get their happiness from their work ever know what real happiness is. The teacher may well be grateful that his opportunity for service offers so much in worthy satisfactions, and so little in bickering, or bitterness, or strife.

Third, that form of service carries most enduring satisfaction which achieves most for posterity. Men who have acquired wealth without rendering service which contributes to future good feel this lack, and strive by philanthropic giving or by the building of monuments to make posterity think well of them. The soldier in stress of battle faces death unflinchingly in the faith that the future of humanity is served by his deed. The supreme service for posterity is rendered by the teacher, who

makes secure for it the hard-won wisdom of the past, and inspires to a further quest for the truth that makes men free.

With a realization, therefore, that into the keeping of the teacher is given the most precious possessions of the Nation, and that the teaching service stands first in satisfaction and enduring achievement, the teacher may well cherish a philosophy of work and of life replete with courage and faith. Such a philosophy gives virile significance to the daily tasks, and redounds with dynamic effect upon the teacher's own personality.

Summary. Although teacher-activity should not be the center of emphasis in the classroom, nevertheless the personality of the teacher is an important element in the total situation which confronts the learner, and should be favorable to permanent growth in an educational way. The influence of the teacher's personality upon success is generally recognized, but many are inclined to question the possibility of its being modified in any individual case. An analysis of the problem shows, however, that those factors upon which success in teaching is primarily dependent are capable of cultivation, and in accordance with the laws of learning as previously studied.

The essential factors of personality fall into two groups. The first includes elements which are physical in nature, such as appearance, voice, manner, health, and energy. A careful regard for the details involved in the improvement of each of these will achieve satisfactory results, although it may call for more attention to hygienic living, care in dress and habits, and planning of personal activities than an indifferent individual might prefer. In the second group belong the dynamic interests, enthusiasms, and vital convictions which give force and character to personality. Prominent among the characteristics which

affect in a fundamental way the development of these elements of personality are a genuine interest in children, a progressive attitude toward self-improvement, and a worthy philosophy of teaching as an opportunity for high service and gratifying achievement. These factors also are subject to cultivation to a marked degree, in accordance with the principles governing the growth of attitudes and appreciations. Any individual of normal tastes and ability who wishes to prepare for teaching, and is willing to accept in sincerity its full obligations, may confidently expect to be able, with due effort, to develop the necessary traits of personality for successful practice.

OBSERVATION GUIDE ON PERSONALITY

A. *Physical factors of personality.*

1. Appearance.
   a. Was dress appropriate?
   b. Did teacher furnish pupils a satisfactory example of neatness and taste?

2. Voice.
   a. Was quality agreeable and favorable in effect upon pupils?
   b. Were words distinct, well-enunciated, and fully audible?
   c. Was teacher apparently conscious of effect of voice on responses of pupils, and trying to make best use of it?

3. Manner.
   a. Did teacher's manner inspire courtesy and good will in pupils?
   b. Were poise and bearing appropriate for leadership, and as examples to children?
   c. Note any mannerisms which seemed distracting, and not conducive to best work.
   d. Did manner suggest proper proportion of dignity, good humor, sympathy, and earnestness?

4. Health and energy.
   a. Evidences of nervousness or irritability?
   b. Did teacher show vitality essential to leadership and alert participation?

B. *Mental factors.*
   1. Teacher's interest in pupils.
      a. What seemed the chief interest during recitation?
      b. Responsiveness to difficulties of pupils?
      c. Were pupils apparently sure of teacher's interest?
   2. Attitude toward work of teaching.
      a. Note evidences of satisfaction, pride, and apparent pleasure in teaching.
      b. Did there seem to be direct relationship between this attitude and effectiveness of teaching?
   3. Desire for self-improvement.
      a. Was the teacher interested in studying new developments, or did teaching seem "set"?
      b. Note books, journals, improvised equipment, or other signs of alertness for suggestions and interest in improved teaching.

PROBLEMS AND EXERCISES

1. To what extent is the emphasis regularly placed on personality by school officials justifiable? How could teacher-training courses give more effective preparation in this line?
2. Give examples from your own experience to show how the personality of the teacher may be the determining factor for better or worse in a learning situation.
3. Select three individuals among acquaintances who are especially characterized by effective personality, and try to decide what elements (such as affable manner, intensity of convictions, enthusiastic loyalties, etc.) are responsible. How many of these elements in each case are traits which are subject to any considerable modification through whole-hearted and persistent effort?
4. To what extent are college students influenced in their selection of courses by the personality of instructors? Is such influence justifiable, when measured by the student's own responses and progress?
5. Explain and illustrate the distinction between intelligent interest in children and sentimentality regarding them.
6. Recall an example you have known of an aversion which was transformed into a liking through activities which revealed mutual interests. What is likely to be the character of the resulting friendly interest?
7. Enumerate the various means of professional improvement which are open to teachers in service. What arguments would you employ to induce an indifferent teacher to make use of some of these opportunities?

8. The service clubs, such as Rotary, Kiwanis, and others, which have been organized among business men all over the Nation, all have a program for inspiring a higher philosophy of service among their members. Examine the formulated standards of business and professional service of one of these clubs, and compare them with what you consider worthy standards for service in teaching.
9. Reference is made in the chapter to a classification of teachers on the basis of whether they regard their work "as an opportunity, a job, or an affliction." Give a brief characterization of each of these three types, as you have observed them.
10. Show how the teacher's success in community relationships is especially dependent upon personality. How may participation in community interests have in turn a wholesome effect upon the teacher?
11. Name what you consider the three most important characteristics of a true professional attitude in teaching, and show the relation of each to growth in efficiency.

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